

POST-DOC 0916							
RIF PROPOSAL NUMBER	TITLE	COORDINATOR	HOST ORGANIZATION	PARTNER ORGANIZATION	PROGECT BUDGET	RIF FUNDING	PUBLISHABLE SUMMARY
Life Sciences POST-DOC/0916/0141	Exploring the role of ciliary adhesion complexes in multiciliated cell differentiation and function	Paris Skourides	University of Cyprus	PA 1: The Cyprus Institute of Neurology and Genetics	159.960,00 € *	159.960,00 € *	Cilogenesis is a multistep process that begins in the cytosol, where basal bodies are generated, and ends at the apical surface with the projection of cilia. Cilia are involved in fundamental processes during embryonic development and tissue homeostasis. Defects in the formation or function of cilia have been linked to a spectrum of diseases in humans, called ciliopathies, many of which affecting the Cypriot population. Uncovering the genes and mechanisms underlying cilogenesis is crucial in order to better understand the molecular basis of these diseases and develop diagnostic tools as well as therapies. Previous work from our group led to the discovery of the ciliary adhesion (CA) complex. This complex is composed of well characterized focal adhesion proteins, forms in close association with the basal bodies, in an integrin independent manner, and mediates complex interactions with the multiple actin networks formed in multiciliated cells. Understanding these interactions is crucial given the central role of the actin cytoskeleton in numerous processes driving cilogenesis and ciliary function. Four proteins have so far been shown to localize at CAs; FAK, Paxillin, talin and vinculin and despite previous work on the role of FAK, the study of the complex is still in its infancy. This proposal aims to dissect the role of the CA complex in cilogenesis and ciliary function. At the same time we plan address a number of basic questions arising, with respect to the establishment of the complex, the discrete roles of individual CA proteins and their molecular interactions. This will be accomplished through the use of cutting edge loss of function approaches in combination with advanced imaging modalities including FRET, FRAP and FLIP. Finally, we propose a novel Xenopus based assay that will allow screening of potential therapeutic agents for primary ciliary dyskinesia and at the same time facilitate the study of the molecular basis of the disease.
POST-DOC/0916/0034	Advancing site level management through innovative reptiles' tracking and behavioural decryption	Lefkios Sergides	Terra Cypria - The Cyprus Conservation Foundation	PA 1: Open University of Cyprus PA 2: Ministry of Agriculture, Rural Development and Environment	190.701,60 € *	160.000,00 € *	Although modern technologies such as GPS and accelerometers have revolutionized the field of animal monitoring and habitat utilization, technical limitations prevent their use for small-sized reptiles. The general objective of this project is to tackle this problem and advance scientific knowledge in the fields of (a) reptile locomotion (b) behavioral analysis and (c) conservation, through the development of novel monitoring techniques and approaches. The project will take place in Cyprus using two common species, a lizard (<i>Stellagama stellio</i>) and a snake (<i>Dolichophis jugularis</i>). For achieving these objectives two innovative techniques will be established. The first aims to enable the semi-autonomous and continuous remote tracking of reptiles to obtain fine-scale locomotion data. This technique will be based on Angle-of-Arrival measurements acquired through Radio Direction Finding (RDF) technology which is able to calculate and project the location of a VHF transmitter on a digital map. The second focuses on semi-autonomous recognizing and categorizing behavioral patterns of reptiles, tagged with small-size accelerometers. This technique relies on analyzing acceleration curves through the use of pattern recognition software and linking them with a predefined behavioral pattern database. The combination of those techniques with state-of-the-art technology in remote sensing, advance photogrammetry and image pattern recognition will allow the creation of fine scale micro-habitat utilization maps, advancing site level management through the designing of more targeted, species based management and conservation actions. For the successful implementation of this project, a number of activities are foreseen including developing of innovative tools, monitoring of reptiles, analyzing acceleration curves and developing algorithms for predicting animals' movements. Both techniques when fully developed will be tested in the field through a case study and their abilities for enhancing conservation delivery will be evaluated.
POST-DOC/0916/0049	Triggering Photoprotection in Photosystem II Antenna by Molecular Simulations and Raman Spectroscopy	Vangelis Daskalakis	Cyprus University of Technology		159.965,20 € *	159.965,20 € *	Light harvesting serves as a biological signal and the trigger for photosynthesis in plants and algae. As a source of energy, light can be unreliable, given that its intensity varies globally from values below the threshold for an efficient photosynthetic process, to values far beyond the capacity of the photosynthetic apparatus. This can impair the native biochemical components of the apparatus and compromise the efficient energy storage, which is crucial for their survival. Our goal is to advance scientific knowledge at a fundamental level, using elaborate computational methodologies and experimental techniques, to probe the response of higher plants to a varying light intensity and the down regulation mechanism of photosynthesis, at the atomic scale. All-atom and large-scale Classical Molecular Dynamics (CMD) and full Quantum (ab initio, QM) simulations will be employed to probe the energy transfer and quenching dynamics in Light Harvesting Complexes (LHCs), as powerful tools. The knowledge of a qE-related LHC structure-conformation and dynamics at the atomic level, can be used to reconstruct experimental observables in a complex connection between structure, experimental measurements and function of LHC under quenching conditions. The elucidation of the down-regulation mechanism of Photosynthesis, called Non-Photochemical Quenching (NPQ), and especially its major component (qE), has possible applications for the changing climate that leads to light, heat and salinity stress for crops. The research on NPQ (qE) proposed herein, proves an important aspect of experimental biochemistry and computational biophysics. It is the focus of many research groups worldwide and a matter of considerable debate in the ongoing challenge to cutting-edge fundamental scientific research. Thus, the results of this project will add to the state-of-the-art literature and promote Cyprus research production to a high level of recognition worldwide.
POST-DOC/0916/0190	Preclinical studies of treating Alport Syndrome mouse models with chemical chaperons	Christoforos Odiatis	University of Cyprus		159.999,98 € *	159.999,98 € *	Alport Syndrome (AS) is a severe inherited glomerulopathy caused by mutations in the α -chains of type IV collagen (COL4), the most abundant component of the glomerular basement membrane (GBM). Typically, patients present with microhematuria since childhood and they progress to proteinuria, renal function impairment and end-stage renal disease (ESRD) usually during the 2nd-3rd decade of life. Nearly half of mutations in AS are single aminoacid substitutions giving proteins that are secreted poorly, resulting in defective GBMs. Recently MMRC research showed that impaired secretion of misfolded proteins results in activation of the Unfolded Protein Response (UPR) signaling cascade, which when prolonged leads to impaired podocyte function and/or loss. It was also shown that UPR is activated when one collagen chain is downregulated, something that is relevant to patients carrying truncating mutations (Pieri M et al, JASN 2014). The same paper included the first partial description of a knockin AS mouse, carrying the Col4a3-p.G1332E mutation (corresponding to human COL4A3-p.G1334E, a founder mutation). Under study at MMRC is another hemizygous mouse we created, which carries the same single mutant allele, Col4a3-G1332. Here we propose to use pharmacologically active synthetic chaperones, which proved beneficial for other disorders, to test if they could guide the secretion of mutant COL4 and the formation of imperfect networks that might be better tolerated than null or impaired secretion. This is based on the fact that positive collagen staining in some patient biopsies, was associated with better prognosis. This treatment will be done in an innovative setup: Three mouse models of AS, one totally lacking collagen IV (knockout), one homozygous mutant (knockin), and one hemizygous mutant. The proposed project is an excellent paradigm of pre-clinical translational medical research. The results will not only shed light on the molecular mechanisms behind COL4 mutations but will also set the basis for a new treatment for AS.
POST-DOC/0916/0111	Unveiling the impact of acquired stemness on viral carcinogenesis	Katerina Strati	University of Cyprus		159.996,00 € *	159.996,00 € *	Human papillomaviruses (HPVs) are associated with >5% of human cancers and are useful models for understanding non-virally associated cancers. Defining the molecular mechanisms implicated in the generation and maintenance of carcinogenesis is important in the development of improved methods for the prevention, diagnosis and treatment of cancer. Our lab is interested in the role of cancer-causing papillomaviruses in manipulating genes involved in stem cell biology. Recent evidence suggests that cellular plasticity and cellular "stemness" may be implicated in the carcinogenic process. We have been using the human papillomavirus HPV16, the major cause of cervical cancer, as a model for oncogenic viruses to study the role of acquired stemness in the viral lifecycle and carcinogenesis. Our proposed work will provide the first direct in vivo evidence for the interplay between an oncogenic virus and stemness aiding in the elucidation of the reciprocal interaction between infection, cellular plasticity and cancer. We have generated preliminary evidence that HPV16 can change tissue stem cell dynamics and promote acquired "stemness" in vitro and in vivo. In this proposal we aim to examine the interplay of an increase in tissue stemness, through in vivo reprogramming, with the oncogenes of HPV16 E6 and E7. We plan to do this by combining the use of transgenic and reprogrammable mouse models as well as reprogramming technologies and cell culture assays. Importantly, through these integrated technologies we aim to use our findings to identify new putative players in cervical cancer which could be used in the development of improved cervical cancer diagnostics and therapeutics.

POST-DOC/0916/0003	Functional characterization of transmembrane protein TMEM147: A master regulator of cholesterol biosynthesis in human cells?	Newi Santama	University of Cyprus		159.820,00 € *	159.820,00 € *	We will establish a high-caliber Research Network, including a talented post-doctoral Researcher, to carry out an internationally competitive Project in molecular cell Biology. We will investigate the provocative and novel hypothesis that the Endoplasmic Reticulum (ER)-based protein TMEM147 is a master regulator of cholesterol biosynthesis. Compelling preliminary evidence in the HO group has revealed protein interactions between TMEM147 and the nuclear envelope protein Lamin B receptor (LBR), an intensively studied protein involved in chromatin remodeling and transcriptional repression in the nucleus through its N-terminal domain. Intriguing work by research groups internationally indicates a possible additional, dual biological function of LBR, based on its modular structure and ascribing a sterol reductase activity, critical for cholesterol biosynthesis, to its distinct C-terminal domain. Consistently, the HO group has also demonstrated interactions of TMEM147 with enzymes DHCR7 and TM7SF2, key reductases in cholesterol's biosynthetic pathway. In a concerted experimental plan, and using powerful state-of-the-art tools we have already generated, we will functionally characterize TMEM147 in human cells. We will conduct a targeted screen, based on RNA interference, to analyse silencing phenotypes and probe for an extended complement of ER proteins interacting with TMEM147. We will independently confirm novel candidates by immunoprecipitation. We will conduct molecular mapping to delineate the TMEM147-interaction domain within LBR with the aid of rationally designed constructs. Harnessing lipidomics and metabolomics, we will compare the lipid and metabolite signature in wild type- and TMEM147-silenced cells, thus directly evaluating and quantifying the role of TMEM147 as upstream repressor of LBR and sterol reductase activity. We expect to establish and characterise a focal function of TMEM147 in cholesterol biosynthesis and thus make an important contribution to a frontier topic with great medical significance.
POST-DOC/0916/0222	Introducing the best of collaborative world practices to care for patients with Rare Disorders: planting the seeds for a state-of-the-art global patient support in Cyprus	Michael Angastiniotis	Cyprus Alliance for Rare Disorders		159.724,00 € *	159.724,00 € *	Experts agree that suffering from a Rare Disorder often coincides with delayed diagnoses as well as underestimation of the true parameters of the disease. The often limited national experience on RD and the costly cross-border consultation for both medical professionals and patients are some of the main causes. For a patient suffering from a RD, the opportunity to discuss experiences with fellow patients and benefit from patient to patient care and psychosocial support is invaluable. It has the potential of creating new knowledge and advice about the disease, as well as access to resources such as medication or simple 'tricks and tips' for everyday management of the disease. For a doctor who is less experienced in treating RD, it is essential to have access points to support from more experienced health professionals in distant locations, aiming at increasing accuracy in the diagnosis of a RD, better management and cost-effective regular patients' follow up. In light of these challenges, Rare-e-Connect will develop an electronic platform bringing together geographically dispersed healthcare professionals and patients, waiving the need for physical travelling for expert knowledge dissemination and patients' regular evaluations. In so doing, Rare-e-Connect will be working towards reducing inequalities found in accessing facilities and time needed for the diagnosis of patients with RD, while contributing significantly to the reduction of the financial burden of diagnosis and healthcare for such genetic, life-long, chronic diseases. Data showcasing patient and doctor activity on this platform will be analyzed and conclusions will be drawn in regards to the impact of this technological infrastructure for collaborative knowledge construction in regards to RD, patients' psychosocial support. In turn, this data will help discern the potential of similar platforms as a sustainable solution with long-term application for disease management and quality healthcare services.
POST-DOC/0916/0235	Developing miRNA serum-based biomarkers for muscular dystrophies	Leonidas Phylactou	The Cyprus Institute of Neurology and Genetics		159.998,00 € *	159.998,00 € *	Muscular dystrophies are a group of heterogeneous genetic disorders characterized by progressive loss of skeletal muscle mass. Muscular dystrophies share clinical and dystrophic pathological features on muscle biopsy. The most common muscular dystrophies includes Duchenne muscular dystrophy (DMD), Myotonic Dystrophy type 1 (DM1), Facioscapulohumeral muscular dystrophy (FSHD), Limb-girdle muscular dystrophies (LGMDs) and oculopharyngeal muscular dystrophy (OPMD). The identification of blood-based biomarkers for muscular dystrophies would provide added value for the monitoring of the disease. Various scientific reports showed that extracellular circulating miRNAs are stable present within serum and have the potential to be used as clinical biomarkers for various diseases and injury conditions. Several reports showed that specific blood circulating miRNAs can be used as potential biomarkers of DMD. In particular, three miRNA biomarkers (miR-1, miR-133, and miR-206) were found highly elevated in serum of DMD patients. These miRNAs were also found elevated in DM1 patients compared to controls, presumably, as a consequence of the degradation of muscle tissue during muscle wasting. Although some significant and very important reports have been published regarding the development of new biomarkers for DMD and DM1, there is little evidence regarding the other muscular dystrophies. Some experiments have been performed on animal models of muscular dystrophies underlying the need for the development of blood-based biomarkers for this group of disorders. The proposed project aims to identify miRNA serum-based biomarkers for muscular dystrophies including DMD, DM1, FSHD, LGMDs and OPMD.
POST-DOC/0916/0012	Epigenetic modulation for the generation of innovative cellular immunotherapies against Graft versus Host Disease	Laura Koumas Lioliou	Center for the Study of Haematological Malignancies		159.810,00 € *	159.810,00 € *	There is an urgent need for novel therapeutic strategies for graft versus host disease (GvHD) occurring after allogeneic hematopoietic stem cell transplantation (allo-HSCT). Whilst hypomethylating agents, such as Aza (5-azacitidine), have been shown to ex vivo generate immunoregulatory T cells, the major caveat in the use of these FOXP3+ regulatory T cells (Tregs) in clinical practice is the lack of specific surface markers for efficient purification. As indicated by our preliminary results, genes other than FOXP3 are responsible for the suppressor function of Aza-induced Tregs. We have shown that short in vitro treatment of T cells with Aza induces immunosuppressive HLA-G expressing T cells. The ultimate goal of the EPICELL consortium, in a research collaboration, is to develop a novel, easily generated and easily purified cellular immunotherapy against GvHD. Towards this goal we plan to: A) Induce maximum and stable HLA-G expression and suppressor function in human T cells in vitro and test them under GvHD-like conditions, B) Generate clinical scale and clinical grade HLA-G+ Tregs, and C) Cryopreserve in vitro Aza-induced HLA-G+ suppressor cells, under GMP conditions, which will upon clinical trial approval be used for the in vivo investigation in acute GvHD. We anticipate that through EPICELL, we will ex vivo produce a new category of inducible regulatory T cells, the HA-induced HLA-G+ Tregs, with the perspective to enter clinical practice and be used as adoptive cellular therapy for GvHD and other T cell mediated diseases.
POST-DOC/0916/0109	Human induced pluripotent stem cells as an in vitro model of podocyte development and Alport disease	christodoulos xiniris	University of Nicosia	PA 1 : The Cyprus Institute of Neurology and Genetics	159.808,00 € *	159.808,00 € *	Chronic kidney disease affects 5-7 % of the population worldwide, and its incidence is increasing at an alarming rate. It is characterized by progressive loss of kidney function and defects in glomerular filtration, which can lead to end-stage renal disease. The loss of podocytes, highly specialized cells unable to regenerate, play a key role in the decline of GFR that leads to CKD. Therefore, there is an urgent need to develop new therapeutic approaches to stop cell death and replace lost podocytes in the mature kidney. Human induced pluripotent stem cells (hiPSCs) are an important tool for studying disease mechanisms and developing strategies for regenerating damaged podocytes. We, and others, have successfully differentiated hiPSCs into nephron progenitors and podocytes, but using these methods to create models of human disease in a "dish" has not been explored yet. This is because the current protocols to differentiate hiPSCs are not very efficient or reproducible. Thus, the aims of this proposal are: first, to generate reporter cell lines to optimize the differentiation of podocytes from hiPSCs and, second, to use this protocol to compare podocytes from mutant and control hiPSCs generated from Alport disease (AD) patients. Specifically, we set out to study AD because it is a common genetic disorder in Cyprus with variable clinical characteristics that often leads to CKD/ESRD, and there is a need to create human models of the disease. Overall, our project will help to develop more efficient differentiation protocols to generate podocytes, and to reveal new therapeutic targets for treating AD, paving the way for developing new cell therapies for CKD. Moreover, the use of cutting edge technologies, such as hiPSCs cultures and CRISPR/Cas9 genome engineering will establish the field of Stem Cells and Regenerative Medicine in Cyprus. Apart from advancing biomedical research, this innovative project could also have a significant impact on society and stimulate the biotechnology and pharmaceutical industries.
POST-DOC/0916/0044	Unveiling novel molecular mechanisms that regulate colonization of dormant metastatic breast cancer cells	Panagiotis Papageorgis	E.U.C. Research Centre Ltd	PA 1 : University of Cyprus	159.992,00 € *	159.992,00 € *	Metastasis, a multistep process during which cancer cells disseminate to secondary organs, represents the main cause of death for breast cancer patients. Treated breast cancer patients often develop macrometastases after years of latency. This phenomenon represents a major clinical obstacle in cancer patient care. Therefore, it is critically important to unravel the underlying mechanisms that elicit the escape from tumor dormancy, thus facilitating the development of novel therapeutic strategies. We hypothesize that the escape of metastatic breast cancer cells from a dormant state is mediated via the accumulation of yet unidentified molecular alterations that allow metastatic cells to colonize. Our main objective is to elucidate the molecular mechanisms underlying the escape from dormancy of metastatic breast cancer. Our Specific Aims are: 1. To isolate distinct metastatic breast cancer cell populations from different stages during their dormancy period in vivo, 2. To define the gene expression patterns which are associated with the escape from dormancy in breast cancer cells and 3. To assess the contribution of differentially expressed genes in controlling dormancy. In our approach we will utilize an established in vivo model coupled with metastatic breast cancer cells expressing GFP to monitor the period during their dormancy until metastatic outgrowth in the lungs and isolate these cells at different time points. Genome-wide gene expression microarray analyses are expected to reveal the microenvironment-induced transcriptional landscapes which regulate dormancy of metastatic breast cancer. The clinical significance of identified targets will be evaluated by meta-analysis of available breast cancer patient data and correlation with their RFS and DMFS. Finally, using inducible lentiviral expression and shRNA vectors transduced in metastatic breast cancer cells, we will assess the functional implication of the identified effector genes in regulating transition from micro- to macrometastasis formation.

POST-DOC/0916/0243	Microparticles and microRNAs in the fight against cancer: A novel diagnostic and therapeutic tool for the prevention and therapy of metastatic breast cancer.	Andreas Anayiotos	Cyprus University of Technology	PA 1: Theramir Ltd	159,442.00 € *	159,442.00 € *	MICROCURE aims to advance a new class of therapeutic agents, based on microparticles (MPs) derived from mesenchymal stem cells (MSCs) that can selectively target tumours in vivo. These MPs are designed to enclose and deliver microRNAs (miRNAs) that affect the action of genes associated with cancer growth, neovascularisation and metastasis. There is an urgent need to develop targeted strategies for cancer therapy and miRNAs have been proposed as a promising strategy due to their ability to target multiple tumour-related genes. Furthermore, current treatments have yet to achieve complete tumour eradication, due mainly to difficulties in effectively blocking the complex cancer growth process as well as due to inadequate delivery of therapeutic agents to the tumour site. The rationale for using MSCs derived from human umbilical cords is based on the concept that these cells have the ability to home and engraft in solid tumours, are karyotypically stable and induce immunosuppression through cytokine inhibition. We are developing a novel, licensable concept for delivery of therapeutic miRNA via an engineered, tumor-targeting membrane vehicle that can enhance selective delivery to solid tumours and improve treatment outcomes. In the present study, we will define the role of a novel oncoprotein in breast cancer biology and we will unveil the miRNA regulator that targets and suppresses it in vivo. We will develop a metastasis-specific miRNA biomarker as a diagnostic tool and we will advance a novel therapeutic strategy based on our patented miRNA-containing MPs, targeting both primary tumours and metastatic foci. What this project aims to achieve is to broaden the young researcher's scientific expertise with experience gained in other research domains, as well as to provide effective exposure to management and entrepreneurship principles that play a crucial role in nurturing a new category of researcher: the "entrepreneurial academic".
Physical Sciences and Engineering							
POST-DOC/0916/0237	Nickel Leaching from Cardiovascular Stents: Development of an In Silico Toxicokinetic Model	Andreas Anayiotos	Cyprus University of Technology	PA 1: NovaMechanics Ltd PA 2: cp foodlab ltd	159,999.60 € *	159,999.00 € *	Metal implants experience different levels of wear and corrosion due to the mechanical and biochemical environment at the implantation site. Many alloys used in cardiovascular devices contain high levels of nickel, which if released in sufficient quantities can give rise to several adverse health effects. Despite a recent strong FDA interest, there is currently no recognized standard test method for metal ion release from medical implants. While nickel release from these devices is typically characterized through in vitro immersion tests, it is debatable whether in vitro to in vivo correlations are representative of the release rate following implantation in the body. To address this uncertainty and improve nonclinical testing, this study aims to develop an in silico toxicokinetic model to determine concentrations of released nickel ions from cardiovascular stents into the human body over time. The proposed model will combine a toxicokinetic with a physics-based diffusion compartment and will be parameterized using data derived from in vitro immersion tests and stent implantation studies in mice. The predictive value of the developed in silico model will be validated against clinical data and after successful extrapolation to reflect human physiology, the fine-tuned model will be utilized to determine the distribution of nickel in the body based only upon relatively straightforward in vitro experiments. The study will significantly improve the nonclinical methods used to evaluate corrosion in biomedical implants and will provide cardiovascular device manufacturers with a useful analytical tool to assess corrosion susceptibility and nickel leach to meet the clinical acceptance criteria. The project offers a potential solution to a health care issue of immense societal and economic importance and at the same time will act as a catalyst in assisting the Young Researcher to upgrade his research and innovation competencies and accelerate his career development within the research infrastructure of Cyprus.
POST-DOC/0916/0023	Adaptive Video Control for Real-time Mobile Health Systems and Services	Andreas Panayides	SIGINT SOLUTIONS LIMITED	PA 1: University of Cyprus PA 2: Open University of Cyprus	159,574.79 € *	159,574.79 € *	Advancement and wider adoption of mobile health (mHealth) systems and services has been identified as a key priority both at a global and at the European level. The goal is to facilitate increased quality of care while reducing hospitalization times and associated costs. In terms of mHealth medical video communication systems, application scenarios range from remote patient monitoring, diagnosis, and care, to emergency incident response and medical education. Once adopted in standard clinical practice, these systems are expected to transform healthcare delivery by fostering responsive emergency systems that will significantly improve patients' quality of care and life. Despite the plethora of medical video communication systems in the literature, the adoption in standard clinical practice remains limited. This is primarily attributed to the fact that most studies rely on static implementations, are modality and technology specific, do not address computational complexity, and more importantly, do not facilitate efficient adaptation to time-varying real-time video communication constraints. In this study we propose a top-down, video modality and underlying technology independent, scalable approach. The goal is to provide methods for real-time end-to-end systems that dynamically adapt to time-varying channel state while maximizing clinical video quality. The latter is expected to expedite the adoption of m-Health medical video communications in standard clinical practice by preserving the quality thresholds for remote diagnosis and clinical decision making.
POST-DOC/0916/0139	Multidimensional ambiguous stochastic dynamical models with applications to Cyprus population distribution	Christoforos Hadjicostis	University of Cyprus		160,000.00 € *	160,000.00 € *	Population forecasts and projections are crucial for many areas of public policy, and for a variety of planning applications, in the public, private, and third sectors of economy. Understanding compositional aspects of human population and its structural changes are also important requirements for the Government and other Social agencies for decision making and resource allocation on an objective basis. Interest in this area is growing fast and one of the key challenges in the upcoming years is the development of stochastic dynamical population models for dealing with complex, distributed and uncertain dynamics. Motivated by the aforesaid purposes, MultiPOP project will provide a general mathematical framework for the study of multidimensional stochastic dynamical models subject to uncertainty and ambiguity, allowing the development of optimal and robust stochastic control policies, and enabling a widespread use of the developed theory in currently under explored areas of population studies for policy and planning purposes. Toward this end, we will utilise tools from the fields of systems and stochastic control, system identification and prediction to capture the effects of ambiguity on dynamic models. In particular, we will develop a mathematical tool known as the Total Variation distance metric to codify the impact of incorrect dynamical models on the performance of optimal decisions. Then we will develop and improve population modelling and Total Variation distance analysis as a practical tool for studying the population distribution of Cyprus using simulated datasets with increasing complexity. In particular, we will deal with three promising areas of application: highly structured and complex models, problems with limited data, and problems of policy making and planning with regard to immigration and various socio-economic programs. The methodologies that will be developed and the knowledge gained are general and may have great impact in the applied population sciences throughout the twenty-first century.
POST-DOC/0916/0138	Trapping of Continental Shelf Waves	George Kaoullas	University of Cyprus		155,040.00 € *	155,040.00 € *	Much of the energy measured near coastlines is contained in low frequency waves with periods of a few days, known as continental shelf waves (CSWs), existing due to the interaction of depth changes and the Earth's rotation. CSWs decaying both away from the coast and along the shelf are called trapped CSWs (tCSWs) which show higher than normal energy in the low-frequency horizontal velocity field, thus affecting the stirring, nutrient and pollution concentrations at certain areas of the shelf. They are also of interest to pure mathematicians, studying the eigenvalues of differential operators. Recent analytical and numerical work, using the simplest model possible (unforced, barotropic, rigid-lid approximations) suggests that a number of topographic features (e.g. bays, headlands, submerged valleys or ridges), even bays at lakes ends, can support tCSWs, thus in reality it is a much more common phenomenon than previously thought. The objective of the proposed work is to address a number of open questions regarding the trapping of CSWs, using more complicated models, taking into account the effect of stratification, free-surface, wind forcing and mean currents, by utilising analytical and numerical methodologies. We aim to examine trapping along various shelf-coastline geometries and at lake ends, including stratification and free-surface effects. The physical mechanisms exciting tCSWs will also be addressed, by adding wind forcing and tides into the models. Analytical, asymptotic results will be sought for a weakly curving coast and a straight shelf with weakly curving isobaths, for the stratified, free-surface and wind forcing models using regular asymptotic expansions or a WKBJ method. Numerical pseudospectral methods will be used to validate the asymptotic results and generalise them. These methods are ideal for the non-constant coefficient equations arising from arbitrary stratification and topography, as well as, more complicated models which include the free-surface, wind forcing and mean currents effects.

POST-DOC/0916/0256	Wireless information and Power transfer towards Sustainable Sensor Networks	Ioannis Krikidis	University of Cyprus		159.480,00 € *	159.480,00 € *	<p>Sensor networks are an important part of modern cities and communities with a wide range of applications. Indeed, the concept of the Internet of Things has emerged from the conventional use of sensor networks but with the ambition of incorporating sensors everywhere and with continuous information exchange between them. Despite the benefits these networks may provide, questions regarding their autonomy and energy sustainability remain unanswered. The project IMPULSE, aims to address these questions by proposing an alternative way of powering sensor networks, namely through wireless powered communications. Transferring energy wirelessly, guarantees a continuous and controlled power flow to sensors but also discards the need for wires and batteries. To this end, IMPULSE aims to provide a thorough understanding of the fundamental limits and practical potentials of wireless powered sensor networks in terms of their energy sustainability and performance efficiency. The objective is to develop a new and complete theoretical framework for the design, operation and performance evaluation of wireless powered sensor networks. By comparison with existing studies that focus on simple point-to-point topologies, IMPULSE turns its attention to large-scale systems which provide new challenges in terms of information and power transmission. The results of this project will have a profound impact on future sensor, machine-to-machine and next generation mobile networks and will fundamentally reshape the landscape of related industries.</p>
POST-DOC/0916/0287	Portable and Cost-effective Particulate Matter Monitoring System	Nikolaos Kouras	ADTESS ADVANCED INTEGRATED TECHNOLOGY SOLUTIONS & SERVICES LTD	PA 1: The Cyprus Institute	184.765,00 € *	159.979,00 € *	<p>Recent research recognizes aerosols as a health risk factor leading the world health organization and the European Union in suggesting and enforcing limitations in human exposure to particulate matter (PM). Besides their health effects, aerosols play a key role on climate. However, large uncertainties prohibit the accurate assessment of these effects. The health and climate effects of PM depend strongly on its physicochemical properties (e.g., particle size, morphology, and chemical composition) and concentration. Apart from the chemical composition, the size and concentration of these airborne particles is one of the main properties for assessing their effects. Despite the significance of PM on both human health and climate, its monitoring is scarce due to the significant cost of the associated instruments. In addition, their size and weight limit their usage onboard lightweight, unmanned aerial vehicles (UAVs), which is an emerging tool in aerial atmospheric observations. Increasing the spatial and temporal resolution of PM measurements will not only result in better understanding of the role of particles on climate (i.e., by reducing the associated uncertainties) but also it will provide means for protecting human health and for enforcing relevant environmental legislation. The development of a prototype portable and cost-effective PM monitoring system, which is the main goal of PRECEPT, will help to overcome current limitations in air quality observations. The implementation of the project will be beneficial for the Young Research (YR) by broadening his career perspectives, but also for the members of the consortium and the society in general, through the knowledge exchange, dissemination of the results and exploitation of the end product. Both members have the specialization and the means, which combined with the expertise of the YR in the field of aerosol science and mechanical engineering, will result in a successful and beneficial for all involved parties, implementation of the project.</p>
POST-DOC/0916/0015	Nano-Controlled Porosity for Multifunctional Fibre Reinforced Polymer Composites	Vasileios Drakonakis	AADM - Advanced Materials Design & Manufacturing Limited	PA 1: Cyprus University of Technology	159.989,04 € *	159.989,04 € *	<p>Fibrous-MultiFoam is proposed for the development of property-driven, tailor-made fibre reinforced polymer (FRP) composites in order to address properties of particular applications (flamability, thermal & electrical conductivity, water resistance, and mechanical strength). This work examines the functionality of different epoxy foaming systems (EFS) and their consolidation within the interlayer (area within 2 successive plies) of multilayer FRP composites. Utilisation of different and novel types of nano-reinforcements (NR) is the key driver in order to particularly enhance the properties of the foamed interlayer (driven by end application) for composites efficient tailoring & effective multi-functionality. Methodology for selection of the most appropriate NR and promising EFS for each property includes: Material selection & literature review, NR-EFS fabrication & experimental evaluation; NR-EFS application in the interlayer of GFRP/CFRP composites; Numerical modelling of foaming process & NR placement; Fibrous-MultiFoam is expected to generate significant research results with particular dimensions of industrial implementation: Construction materials, transportation, and energy applications exhibit a continuous need for multifunctional composite materials. A problem of dual nature has been addressed in all industrial fields of potential application. First, the continuous need for lighter materials without sacrificing other properties, and second, the difficulty to apply multifunctional composites with tailor-made design for particular applications addressing the need for specific properties improvement. Apart from multi-functionality, the proposed nano-reinforced EFS add further weight savings to the overall structure. Although, EFS structures are considered weak compared to non-porous materials, the proposed NR processing strengthens the surface of foaming voids inhibiting crack initiation and defect formation, and allowing utilization in applications that only bulk materials have been utilised so far.</p>
POST-DOC/0916/0197	An in-silico Virtual-Patient Modelling of the effective transport of Drug-Carrying particles to treat Atherosclerosis	Antreas Afantitis	NovalMechanics Ltd	PA 1: University of Cyprus	159.998,72 € *	159.998,72 € *	<p>Diseases of the circulatory system have been the cause of death for almost 2 million Europeans (38% of all deaths) in 2012 alone, the most important being atherosclerosis. Traditional treatments have proven impotent as drug molecules act non-specifically by diffusing freely throughout the body, leading to undesirable side effects and deterring the achievement of the required doses. On the other hand, medical nanotechnological applications have proven proficient enough to deliver protaganistic clinical breakthroughs in the diagnosis and treatment of atherosclerosis through the use of drug-carrying particles (DCPs). In such an endeavour, the optimally design of DCPs targeting atherosclerotic plaques is paramount. However, current design of DCPs is sub-optimal due to several factors like low adherence to the endothelium and an overall inability to reach the designated target. Our goal in this project is to optimize the targeted delivery of DCPs to treat atherosclerosis via the use of a systematic, hierarchical, approach, which includes both experimental and modeling technics. We will employ non-equilibrium thermodynamics (NET) to develop a sophisticated mathematical model addressing the vascular flow of DCPs. Experimental data, and coarse-grained (Dissipative Particle Dynamics) simulations will be employed to parametrize this model. Thereafter, it will be employed in direct Finite Element simulations in atherosclerotic vessels which shall provide the database for training a predictive model, using a KNIME platform and the Host's in-house produced Enalos KNIME nodes, which is to be employed to compute the optimal particle characteristics for a specific in silico patient. The proposed research and training will establish a bidirectional skill transfer where the applicant's expertise in NET will be complemented by the Host's in-silico simulations, which in effect will enhance the fellow's scientific potential and professional maturity, and promote European research.</p>
POST-DOC/0916/0292	Pistacia Atlantica subsp. Cypricola: a characterization study	Chara Papastephanou	op foodlab ltd		205.996,00 € *	158.000,00 € *	<p>The general purpose of this project is to explore the products of the Pistacia atlantica subsp. Cypricola species; specifically the resin and seeds of the tree known as "terebinth". The Pistacia Atlantica subsp. Cypricola is encountered mostly in the woodland of Pafos and its products had been used traditionally as pharmaceutical remedies for centuries. Unfortunately, due to the usage of synthetically produced pharmaceuticals, this natural species is now in danger of extinction. This unique study will be the first to fully explore the chemical composition of its two main products as well as their antimicrobial and antioxidant activities. The major objectives of this study are: (1) to determine the chemical composition of gum (resin) and seeds of Pistacia Atlantica subsp. Cypricola including the phenolic profile and the trace metal content quantifiable using Liquid and Gas Chromatography (LC and GC) and Inductively Coupled Plasma Mass Spectrometry and Optical Emission Spectrometry (ICP-MS and OES), respectively, (2) to evaluate the antioxidant activity of the mentioned products by employing different biochemical assays including Ferric Reducing Antioxidant Power (FRAP) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging, (3) to evaluate the antimicrobial activity of the two products by examining their action against Gram negative bacteria, Gram positive bacteria and fungi using microbiology-related methods, (4) to explore the influence of harvesting time and growing site on the chemical characteristics of the two natural products by testing the chemical composition, antimicrobial and antioxidant activities of gum and seeds collected at different altitudes and different maturity stages and (5) to complete a comparison test between antimicrobial and antioxidant activities of Pistacia Atlantica subsp. Cypricola and other natural-pharmaceutical products that have been used as traditional remedies such as Aloe Vera and Curcumin.</p>

POST-DOC/0916/0121	OilEcoDesulfur	Christos Kallis	NORTEST (CYPRUS) LTD	PA 1: Cyprus University of Technology PA 2: University of Cyprus	159.838.00 € *	159.838.00 € *	Sulphur compounds in liquid fuel are undesirable and the level of these compounds in diesel fuel is strictly regulated in the last 15 years for the European Union. These stringent regulations are imposing an urgent requirement for fuel terminals to produce fuels having ultra low sulfur content. One of the technologies commonly used to tackle this problem is the hydrodesulfurization that requires high temperatures and pressures and the exposure of crude oil fractions under severe conditions decreases the value of the fuel. A promising "Eco Technology" is to employ Biodesulfurization (BDS) which is a process that bacteria (liquid phase) are mixed with oil at ambient temperature and pressure and remove selectively organosulfur from oil fractions without degrading the carbon skeleton of the compounds. This project's aim is to develop BDS technology as a strategy to remove Sulphur from oil. In addition, ultrasonication will be examined as an integrated process to increase BDS performance. During BDS process the BDS bacteria cannot maintain activity for a long period of time due to the inhibition by 2-hydroxybiphenyl (2-HBP) which is the final product of BDS. Therefore, part of the objective of this proposal is to create a microbial consortium able to perform Biodesulfurization in a high rate and not to be inhibited by 2-HBP. This can be alleviated due to 2-HBP biodegradation by specific isolated strains. In addition, the integration of BDS with ultrasonication will be investigated as a strategy to increase BDS performance. Apart from these, anaerobic biosulfurization using Sulfate Reducing Bacteria will also be examined as a novel strategy for Sulphur removal from oil. Dr. Marinos Stylianou (Nortest LTD) Cyprus will be the young researcher of the project and Christos Kallis (Nortest LTD Cyprus) will be the co-coordinator. In addition, Dr. Vyrides (WPA, WPS) and Prof. Damianou (WPA) from CUT and Dr. Agapliou (UCT) (WPT) will collaborate in this project.
POST-DOC/0916/0090	Developing a Strongly Consistent, Fault-Tolerant, Long-Lived Distributed Storage System with Failure Prediction Mechanism	Nicolas Nicolaou	Algolytis Ltd	PA1: University of Cyprus	159.480.00 € *	159.480.00 € *	Distributed Storage Systems (DSS) encompass the technology powering modern cloud data storage services such as Dropbox and Google Drive that are used by millions of users as networked platforms for collaborative applications and data storage. Algorithms for DSS ensure data availability and survivability by replicating data in geographically dispersed network locations. However, a major problem with data distribution is consistency, especially when the storage is accessed concurrently by multiple processes; a key to enabling collaboration. Numerous strategies have been devised to mitigate these issues, however a robust and efficient solution remains elusive. In this project, we propose a novel atomic DSS built on top of asynchronous, message-passing, failure-prone, commodity devices. Atomicity is the most natural consistency guarantee as it provides the illusion of a centralised sequentially accessed storage. Our goal is to enhance the practicality of data storage by combining three services: (i) Fragmentation, (ii) Reconfiguration, and (iii) Failure Prediction.
Social Sciences and Humanities							
POST-DOC/0916/0257	It's a matter of the heart: Developmental and Emotional Adjustment Risks in young children with Congenital Heart Disease	Antonis Jossif	Pediatric Cardiology Associates PCP Ltd (Trade name - Paedi Center for Specialized Pediatrics)	PA 1: University of Cyprus PA 2: PAEDIATRIKI ETAIREA KYPROU	119.967.50 € *	119.967.50 € *	Congenital Heart Disease (CHD) is the leading cause of infant morbidity in the Western world affecting 6-8 newborns in every 1000 live births (Wessels, & Willem, 2010). Even though there is an increasing body of research addressing the consequences of CHD in children's development (difficulties in communication and motor skills, attention deficits and impaired executive function), research regarding children's emotional adjustment is scarce. Thus, the present study aims to investigate the incidence of developmental impairments and emotional morbidity in children with mild, moderate and severe CHD aged 2 to 5 years old and examine the medical factors, developmental risks and parenting context (parental stress and quality of parent-child interaction) associated with their emotional adjustment. This is the first study that aims to use a systematic way of examining emotional adjustment in early childhood using a variety of methods such self-report questionnaires from both the child's parents and teacher/caregiver, ratings from the child's pediatrician-cardiologist on illness complexity/severity and an objective measurement of child's capacity in self-regulation of emotion. A secondary aim of the project is to standardize the screening tool Ages and Stages Questionnaire-3 in Greek, a tool that aims to monitor a child's developmental progress. This is the first developmental screening tool that will be culturally adapted and appropriately tested to provide norms in the Greek language for healthy children and children with CHD aged 2 to 66 months. Based on the present study's findings, important research and clinical implications will be extracted regarding early identification of developmental impairments and emotional problems in young childhood and more specifically children with CHD. A new culture on preventative health care and ongoing developmental surveillance will be introduced in pediatric health care settings in Cyprus and Greece with important and innovative findings for the scientific community.
POST-DOC/0916/0083	Investigating spatial integration across sensory modalities and language	Stephanie Pantelides	University of Cyprus	PA 1: SILVERSKY3D VR TECHNOLOGIES LTD	119.724.67 € *	119.724.67 € *	A tourist looking for a specific location in a foreign city may use visuo-spatial information from a map and linguistic spatial information communicated from a local person to reach his/her destination. A wide body of studies have investigated the integration of spatial information encoded through different sensory modalities (e.g., vision, haptics) and from amodal inputs (i.e., language). A critical question is whether integration is a generalized process that applies to all combinations of information inputs or whether distinct integration mechanisms that differ in efficiency exist across different modality-specific combinations. The proposed project aims at investigating spatial integration across vision, haptics, and language using behavioral and neuroimaging measures. Neuroimaging data can provide evidence about the brain activation linked to the different combinations of multimodal integration even when the associated behavioral data are ambiguous. In addition, such data may be more likely to provide valuable insights on when integration takes place (i.e., during encoding or later) and the specific brain activation associated with multimodal integration. Overall, the project will contribute to our understanding of how spatial reasoning, about information derived from different sources, takes place in the brain.
POST-DOC/0916/0115	Media and the European Refugee Crisis-Representations, Practices and Reception in the digital era.	Maria Avraimidou	University of Cyprus	PA 1: Cyprus University of Technology	119.960.00 € *	119.960.00 € *	International news agencies and international media brands, have traditionally functioned as providers of international news content. With the digital turn, these media giants adopted cutting-edge communication technologies and embraced the potentials of social media, reaching audiences directly or through news aggregators such as Google News or Yahoo. Yet, their online presence and potential ability for setting the agenda on global crises using online means remains a vastly uncharted research terrain. The current refugee crisis exemplifies this gap. Despite that all key international media players covered it massively, their roles have yet to capture research attention. Against this background, this project attempts to study the role of news agencies and international media in diffusing information and shaping meanings and beliefs on the refugee crisis in the internet, which despite having a humanitarian angle still remains deeply political. In doing so, the study brings to the fore a perennial question in communication and journalism studies: that of media power, and how media power is sustained and reproduced in the digital era. The study aims to examine media 'power' at the macro and micro level, exploring all stages of the news process: production, content and reception. It's main research objectives, using as a case study the refugee crisis are (a) examine the power of visibility in the internet of key international news agencies and news media with a focus on their social media strategies (b) shed light on online journalistic communication practices and strategies to diffuse information and reach audiences (c) examine 'power' in the media texts, exploring representations and frames and (d) examine adherence/questioning of media power focusing on the reception of refugee-mediated representations.
POST-DOC/0916/0185	Water Routes in Human Island Dispersals: Modeling the Pleistocene Exploitation of Cyprus	Vasiliki Kassianidou	University of Cyprus	PA 1: Cyprus University of Technology PA 2: Ministry of Agriculture, Rural Development and Environment PA 3: Ministry of Transport, Communications and Works	119.980.00 € *	119.980.00 € *	The island of Cyprus, eastern Mediterranean, is best known for its Bronze Age past, whereas very little is known with regards to its earliest prehistory. This is particularly true with regards to the Pleistocene period for which no archaeological evidence has yet been unearthed from anywhere on the island. Given that a) Cyprus is the biggest island in the region, b) other islands in the area, for example Crete, are exploited by hunter-gatherers at this time and, c) evidence for human exploitation of insular landscapes is well attested in other parts of the world, e.g. Australia, the lack of Pleistocene archaeology on Cyprus is peculiar. This project aims at addressing this issue by using predictive modelling to establish the potential early routes and prime exploitation locales during the earliest human visitations to the island. Emphasis is placed on determining the fresh water networks that would have existed on the island during the Pleistocene enabling humans to successfully manage the new environment. By doing so the project will significantly enhance our current knowledge on one of the most exciting new topics in archaeological research worldwide, namely island colonisation, especially in a part of the world where this phenomenon remains largely unexplored.

POST-DOC/0916/0231	The business elite of modern Cyprus, 1878-1959: social origins and entrepreneurial characteristics in a historical perspective	Christodoulos Hadjichristodoulou	BANK OF CYPRUS CULTURAL FOUNDATION		120.000,00 €*	120.000,00 €*	The proposed project (BEMC) seeks to open the "black box" of entrepreneurship in Cyprus by approaching historically the notion through an investigation of individuals that led the business activity. The scientific objectives of the BEMC project are twofold. Firstly, it seeks to examine how the business elite in Cyprus was recruited in British period, (1878-1959) by analyzing the social origins of leading entrepreneurs. With an in-depth analysis of their portrait we expect to reach firm conclusions concerning the variables which determined the entrepreneurial habits of the Cypriot businessmen, namely the social class, social and geographical mobility, social networking, further roles in society and public life. Secondly, it aims to examine the entrepreneurial aptitude and characteristics of these key business players based on established entrepreneurial typologies by understanding their motives and examining their initiatives. The creation of a web application (searchable and indexed database) with public access, and the visualization of the data analysis in a range of interactive Key Performance Indicators (henceforth KPIs) and spatial networks will allow the researchers to understand in depth the interactivity of the social roles of the principal actors in the society and the ecosystem of modern Cyprus. The methodology to be followed will be based on a combination of historical and archival research with multivariate analysis. The level of innovation and originality of the BEMC is considerably high both in terms of scientific and technological advances in historical research. The benefit which is expected to emerge from the BEMC will be multi-dimensional for the HO and the Young Researcher, and considerably significant for economic, social and technological progress at a national and international level.
POST-DOC/0916/0060	Aspects of multiconfessionalism and human geography in early modern Cyprus from the Venetians to the Ottomans	Ianna Hadjikosti	BANK OF CYPRUS CULTURAL FOUNDATION		120.000,00 €*	120.000,00 €*	The project seeks to examine a largely unexplored subject, namely the fascinating coexistence of different Christian confessional communities in Cyprus between ca. 1560 and 1670 ('multiconfessionalism') and the representation of this phenomenon in early modern literature ('human geography'). The chronological limits of the project mainly stretch from the last decade of Venetian rule in Cyprus (1560-1570) to the consolidation of Cypriot-Ottoman elite in the later seventeenth century (ca. 1670). This transitional period was critical for the history of both Cyprus and Western Europe, since it was marked by the incorporation of most of the Eastern Mediterranean into the Ottoman Empire, the revival of the Crusading movement in the Renaissance world and the implementation of a policy of Catholic regeneration and expansion in East and West. The project will extensively examine, for the first time ever, a variety of published and unpublished material from the Collections of the Bank of Cyprus Cultural Foundation, which treasure a cornucopia of unpublished and little-explored material (including maps, manuscripts, early printed books, news bulletins and engravings) that provide invaluable information on Christian ethno-religious coexistence under the Venetians and the Ottomans. More specifically, the project aims at capturing the characteristics of Cypriot Christian coexistence from the Late Venetian to the Early Ottoman period and focuses on their influence on local and Western European perceptions of Cypriot identity and human geography. By employing an innovative interdisciplinary methodology, based on modern theories from the fields of social anthropology, sociology and psychology, the project also plans to better understand how historical communities and individuals expressed or reshaped their ethno-religious identity, so as to adapt in changing conditions and contexts. It is expected that the project findings will be presented to both scholars and the wider public through publications, lectures, conference presentations
POST-DOC/0916/0251	The Spatiality and Materiality of Pilgrimage in Byzantine and Medieval Cyprus and Religious Networks in the Eastern Mediterranean (11th-16th century)	Athanasios Vionis	University of Cyprus	PA 1: Ministry of Transport, Communications and Works PA 2: CYPRUS TOURISM ORGANISATION	120.000,00 €*	120.000,00 €*	SpaMAP Cy aims to investigate the development of religious pilgrimage in Cyprus from the 11th to the 16th century. The proposed project will aim to interrogate the ensemble of the relevant data and to create a corpus for pilgrimage sites and materials directly connected with pilgrimage practices during the period under examination. The corpus on which this research will be based comprises of: material evidence (monuments, archaeological remains and portable pilgrimage artefacts), written sources, sacred topography and landscape analysis. Another objective of the project is to provide new insights into the multicultural society of Cyprus, as well as the way that the pilgrimage sites acted as religious, social and cultural operators on the island. Finally, one of the main purposes of the program is to identify the special position of Cyprus within the broader pilgrimage routes and religious practices of the Eastern Mediterranean. The proposed project constitutes an innovative and interdisciplinary attempt to study pre-modern pilgrimage, that combines traditional approaches (chronological categorisation of monuments, written sources, archaeological data) with contemporary digital techniques and tools (digitisation of artefacts and monuments, statistical data, visualization of thematic maps, application of Geographic Information Systems (GIS)). The results of the project will contribute inter alia to the digitization and management of the cultural heritage of Cyprus, something that will benefit greatly the local community where the monuments are located, by promoting cultural tourism, and by contributing to a sustainable economic development. Finally, the findings of the project will advance our scientific knowledge of the period and will contribute to a more thorough understanding of the history of Cypriot society and the existing current discourse on the peaceful coexistence of and tolerance between different religious and/or ethnic groups on the island, from the medieval past to our times.
POST-DOC/0916/0248	Museum Affinity Spaces (MAS): Re-imagining Museum-School Partnerships for the 21st century through a Multiliteracies Lens	Nicos Souleles	Cyprus University of Technology		114.008,40 €*	114.008,00 €*	The MAS project essentially promotes museum-school collaboration in Europe through the use of technology-enhanced learning such as support, tools and services for schools to utilize in order to implement their curriculum. MAS supports communities of teachers and educators seeking to establish museum-school partnerships as network communities by creating an infrastructure. The Portal offers a seek-find feature to discover partners based on their profile, while the virtual museum creator allows for students to develop their own virtual exhibitions. The intention is to offer opportunities for free and continuing online professional development for educators and museum staff. In particular, the intention is for school-teachers and museum educators and other museum staff as well students to be able to use a virtual platform themselves and in collaboration with other parties from around Cyprus and the world, either through synchronous or asynchronous learning to develop learning activities deriving from museums. There is specific focus on the development of the MAS project to accommodate for culturally and linguistically diverse students' needs through the development of a particular innovative conceptual framework that will be implemented during all phases of the research. It is anticipated that students will deepen their knowledge of cultural heritage through participation in the partnership, while also become motivated to engage in museum learning, whether physically or online in the future. The project will ensure that collaboration between parties proceeds efficiently by supporting their actions through training, development of online learning scenarios and resources for educators to use.
POST-DOC/0916/0068	Dynamics of Car Ownership	Sofronis Clerides	University of Cyprus		120.000,00 €*	120.000,00 €*	Understanding consumer behavior is an important task of economics. An automobile is the largest item most individuals will ever purchase (besides a home), hence economists have dedicated much effort in analyzing the factors that determine automobile purchase decisions. Important methodological advances in the 1990s have made possible the estimation of rich static demand models for differentiated products like automobiles. More recently, attention has shifted to dynamic aspects of consumer behavior. Durable goods pose a challenge because consumer purchase decisions depend not only on the currently available choices but also on expectations of future choices and their characteristics. They also depend on current holdings of the durable: consumers own a stock of durables which they may expand, shrink or upgrade over their lifetime according to their needs. One of the limitations of existing research is that it relies primarily on aggregate data as there is no information on consumers' purchasing patterns over their lifetime. The proposed project aims to make a contribution to the literature by exploiting a unique dataset that records every vehicle registered in Cyprus since 1970. As of 1987, the dataset also records transfers of ownership and an identification number for the vehicle's owner. Thus we can track every vehicle's entire ownership history and each individual's automobile holdings over time. We are not aware of any existing work utilizing data of such scope. A comprehensive descriptive analysis of this unique dataset will provide valuable insights into consumer behavior in durable good markets and will inform the development of tractable but also realistic dynamic models of consumer behavior. Such models are important for evaluating the long-term effects – at both the microeconomic and the macroeconomic level – of policies such as taxation, environmental regulation, scrapping subsidies, vehicle inspection regimes, and imports of used automobiles.