First Faculty of Medicine
Second Faculty of Medicine
Faculty of Pharmacy in Hradec Králové
Faculty of Social Sciences
Faculty of Education
Faculty of Science
Faculty of Mathematics and Physics

1. Relevance of the strategy

First Faculty of Medicine
Royal Hospital for Women, University of New South Wales, Sydney, Australia - Gynaecologic Oncology Centre - The proposed project is designed to facilitate a long term research collaboration between two renown gynaecological oncology centres in Prague and Sydney. (for detailed information please see the enclosure nr. 1) Griffith University, School of Medical Science, Southport, QLD, Australia - Both Universities belong to the prestigious education institutions worldwide, and student exchange program will improve personal career facilitation as well as know-how transfer between Partners. The mobility programs will be focused on specific research programs, already established in recent years (see also below), between the Partners. For more information that are relevant to this part of the project, please, visit http://www.cuni.cz/UK-6729.html (1st_Faculty_of_Medicine_gynekologie_porodnictvi)

Second Faculty of Medicine
The hosting institution, Department of Paediatrics at the University of Western Australia in Perth, is one of the leading institutions in paediatric pulmonology in the world with major accent on physiological and pathological processes in children with early asthma and cystic fibrosis and a very high research profile. The candidate is responsible in our department for developing investigational methods based on infant lung function and multiple breath washout techniques aiming at detection of early changes in such diseases. The aim of the training would increase the qualification of the candidate in these techniques and provide experience in research and clinical application of these objective measures of early pathological changes within bronchial tree of young children with obstructive disease. Standardized technologies and procedures are crucial for a full involvement of our centre within the European Clinical Trial Network for studies in cystic fibrosis.

Faculty of Pharmacy in Hradec Králové
The mobility project can boost already established international scientific cooperation in the field of complex novel drug research (combining pharmacological, biochemical and analytical approaches) between the group of prof. Richardson (University of Sydney) and several groups at Faculty of Pharmacy and Faculty of Medicine in Hradec Kralove and in the field of analytical chemistry between the group of prof. Spas Kolev (University of Melbourne, School of Chemistry) or the group of prof. Mirek Macka (University of Tasmania, Hobart - publication Krhmov et al., Analyst 2009) and Department of analytical chemistry at Faculty of Pharmacy in Hradec Králové. Prof. Richardson is one of the leading scientist focused on development of novel anticancer agents
from the group of iron chelators. The existing cooperation between home faculty and the group of prof. Richardson can be documented by papers published in scientific journals with high IF (8 papers/last 5 years, e.g. Mladěnka et al., Chem Res Toxicol 2009; Stariat et al. Anal Bioanal Chem 2013; Potuckova et al., PloS One 2014; Stariat et al., Biomed Chromatogr 2014).

The planned mobility in the field of analytical chemistry extends long-term cooperation (starting in 2003) based on research contacts (resulted in 1 publication - Kolev et al., Talanta 2009 and several Abstract together) between group leaders (prof. Solich and prof. Kolev). University of Melbourne (via prof. Kolev) is also a non-EU partner for the Horizon 2020 project based on the ETN/ITN network where CU is the main beneficiary (Application was sent in January 2015). Similarly, there is a long experience of cooperation with teachers and postgraduate students from Czech Republic (starting in 2005) with Department of Analytical Chemistry, Faculty of Pharmacy which will result in 2 publications together this year (under preparation).

The mobility enables PhD students to learn novel methods with high potential for implementation in their home laboratories. The mobility of staff (the supervisors of PhD students) can accelerate an international cooperation and enable to set up further novel cooperating projects.

In summary, three established and successful collaboration between Faculty of Pharmacy and universities in Australia exist. These project may enable their further development in both education and research objectives principally in the field of drug research and analytical chemistry.

Faculty of Social Sciences
The main objective of the project is an intensification of cooperation with two Australian universities – the University of Queensland’s School of Political Science and International Relations as well as the School of Humanities at the University of New South Wales – whose specific expertise in specific topics (especially in peace and conflict studies as well as the history of genocides) makes it a valuable partner for teaching and research.

Australian National University in Canberra is among the leading Australian universities in the fields of Economics and Finance, and is also our current partner in a Marie-Curie mobility project. Given its position, it constitutes our natural benchmark.

Shifting geopolitics and geoeconomics continuously raise the relevance of the Asia-Pacific region. Australian universities provide a relatively easy access to the region and its issues. Moreover, existing formal framework secured through the inter-university agreement with both universities provides an excellent starting point for intensified cooperation. With the expected funding, the nature of existing exchange (limited to student mobility) could easily evolve into more extensive matrix of regular mutual contacts including also Ph.D. candidates and academic staff.

Faculty of Education
Professor Novotna from the Faculty of Education is currently engaged in a substantial research collaboration with Professor Clarke from the University of Melbourne. Mutual co-operation is very beneficial and both sides are willing to deepen it.

At this time, two projects are central to this partnership: The Learner’s Perspective Study and The International Lexicon Project. The Learner’s Perspective Study is a highly successful and highly visible international project that has led to many publications (including a research series of 5 books) in which Professor Novotna has made many contributions. The collaboration has also led to successful applications for research funding, of which the Lexicon Project is an example, supporting the ongoing collaboration between researchers at the University of Melbourne and Charles University.

These publications and funding benefit both institutions through the visibility they accord to research activities in both and through the intellectual exchange that benefits both research communities. Funding was obtained several years ago during the initiation of the Learner’s Perspective Study that supported both international team meetings in Melbourne and visits to Charles University by Professor Clarke. The value of these research interactions can be seen in the prominence achieved by the Learner’s Perspective Study and the very visible involvement of Professor Novotna and Charles University in that project. There is every reason to believe that the International Lexicon Project will
attract similar international prominence and that exchange visits between Charles University and Melbourne University will significantly benefit both institutions in their public profile and in the quality of the research facilitated.

Faculty of Science

ANALYTICAL CHEMISTRY

Existing informal cooperation with Prof. Justin Gooding (UNSW) and prof. Alan Bond (Monash University) via membership of prof. Barek in Steering Committee of Division of Analytical Chemistry of European Association for Chemical and Molecular Science and of European Society for Electroanalytical Chemistry should result in the preparation of joint projects, exchange of students and joint diploma and PhD projects including cotutelle.

For more information that are relevant to this part of the project, please, visit [http://www.cuni.cz/UK-6729.html](http://www.cuni.cz/UK-6729.html) (Faculty_of_Science_Australia_ANALYTICAL_CHEMISTRY)

Faculty of Mathematics and Physics

The mobility project relevance is to significantly support existing and developing inter-university cooperation in exchange students programs, while undertaking an academic program at the host institution, developing consultation between the home and the host institution, as full-time at a level undergraduate or graduate, determined by the host institution.

The purpose of each exchange student is to enable students to enrol in subjects specialised especially in applied mathematics or physics and computer science at the host institution for credit which will be applied towards their degree at their home institution.

Partner universities with cooperation experience and/or in negotiation:
- Griffith University, Australia
- The University of Queensland, Australia
- Macquarie University, Sydney, Australia
- The University of Melbourne, Australia
- University of Melbourne Language Technology Group, University of Melbourne, Australia
- LaTrobe University in Melbourne

There exists a long term collaboration between Charles University in Prague and other prestigious universities in the areas of applied mathematics, physics or computer science. It is always beneficial for the partnering institutions to have the opportunity to give or receive expertise trainings on new methods, solutions or sharing knowledge like (lattice theory and general algebraic systems, recently in Constraint Satisfaction Problem etc.).

Some of the partner universities with cooperation experience and/or in negotiation:
- University of Sydney, AUSTRALIA
- Melbourne Language Technology Group, University of Melbourne, Australia
- LaTrobe University in Melbourne

2. Quality of the cooperation arrangements

First Faculty of Medicine

Following previous excellent collaboration established in clinical research projects focused on clinical staging, early diagnosis and management of ovarian cancer. (for detailed information please see the enclosure nr. 1) Collaboration with Prof. Jiri Neuzil which resulted in a current joint research project funded by IGA MZ CZ (Internal Granting Agency, Ministry of Health, Czech Republic), entitled ‘Angiogenesis inhibition as an efficient tool to suppress pancreatic cancer’ (2013-2015). The process of mobility exchange will be based on specific needs of joint research programs and will be supported by Inter-Institutional Agreement.
Second Faculty of Medicine
Our group has been in contact with the UWA for many years. We have co-operated on several standardisation documents in the field of cystic fibrosis, we have also co-authored several consensus statements and guidelines in early childhood asthma.

Faculty of Pharmacy in Hradec Králové
The home faculty has previous experience with one short (3 months) internship at the University of Sydney in 2013 (group of prof. Richardson). The outcomes of the internship are 2 papers published in the journal with high impact factor. Moreover, Prof. Richardson arrived several times for short workshops in Hradec Králové. Prof. Kolev was working in the Laboratory of Flow Methods at our Faculty of Pharmacy for 5 months in 2007. One post-doc from CU was working in prof. Kolev group in 2010 and two applications for research stays of post-doc and PhD student from the Charles University were sent to University of Melbourne this year. Prof. Macka participated in a workshop organized by Faculty of Pharmacy in 2014 and the collaboration will continue this year, when Prof. Macka will arrive on international conference Flow Analysis conference organized in Prague by Faculty of Pharmacy.

The planned mobility will be targeted to Ph.D. students (research internships) and faculty staff (teaching stays).

Faculty of Social Sciences
The Department of International Relations at the Institute of Political Studies has a long-term, intense experience with international students (including English-language ones) and a booming practice of guest professors on which the proposed arrangements will build. The Department of Political Science has a strong and established connection in terms of an existing research project with the School of Humanities, University of New South Wales.

The Institute of Political Studies’ Department of Political Science has an ongoing research project with the School of Humanities, University of New South Wales. This research project is a result of a much longer cooperation of two academics (one in each partner university). The here proposed mobility agreement will further intensify and deepen this cooperation, while giving it a more formal grounding.

The Department of International Relations actively aims at the internationalization of its curriculum, student body and the research and teaching experience of its academic staff. The academic employees have a long-term practice in cooperating with their foreign counterparts, and our students routinely depart to spend their exchange stays at the University of Queensland’s School of Political Science and International Relations.

Head of both departments will be responsible for the formulation of specific goals of the mobility (especially at the level of academic staff) and information thereof vis-a-vis the employees and the students. Specific goals of the proposed mobility will be formulated in coordination with the directors of the department’s study programmes whose coordinators will then communicate them to the students. A contact person on the side of the programme country is needed to help with practical aspects, including accommodation and orientation in the city and on faculty premises.

The Faculty is also involved in 7th Framework project - Marie Currie Actions: involving Cornell University (USA), Fulton Centre (USA), McGill University (Canada), University of California at Berkley (USA), University System of Maryland Foundation (USA), Australian National University, University of Queensland (Australia), University of Auckland (New Zealand), University of Cape Town (South Africa), Irkutsk State University (Russia) and Novosibirsk State University (Russia).

Over the past few years the Faculty has also hosted a number of distinguished professors from Australia, for example Prof. Dirk Moses from University of Sydney and Prof. Jan Lanicek from University of New South Wales.

The cooperation with Australian universities and the Faculty of Social Sciences, Charles University in Prague has taken place through inter-university agreements since 2001, the Faculty of Social Sciences
sends around five students (and receives three students) every year to the University of Queensland, University of Melbourne, Griffith University. We also take part in a vibrant student exchange program with Macquarie University in Sydney.

**Faculty of Education**
Building on the so-far very successful co-operation on common projects, the mobility of academic staff should catalyse significant research contacts leading to further exchange visits and to student exchanges.

As already mentioned, at this time there are two common projects running: The Learner’s Perspective Study and The International Lexicon Project. The Lexicon Project, in particular, will move during 2015 from local activity in the 9 participating countries to an international synthesis stage, at which point Professor Novotná’s presence at the University of Melbourne will be extremely important to the development of a valid International Lexicon and to the project’s progress. During her time in Melbourne, Professor Novotná will meet with Professor Clarke’s research group and with the broader research community (particularly in Mathematics Education) at Melbourne University, and will deliver two public presentations to audiences of academics and research students. It is anticipated that Professor Novotná’s presence in Melbourne will catalyse significant research contacts leading to further exchange visits by academics and research students from both institutions.

**Faculty of Science**
**ANALYTICAL CHEMISTRY**
Prof. Barek (head of UNESCO Laboratory of Environmental Electrochemistry at Charles University in Prague) and prof. Gooding (Scientia Professor and founding co-director of The Australian Centre for NanoMedicine) at UNSW will be responsible for implementation of this mobility project and for further development of cooperation in the field of electroanalytical chemistry based on new nanomaterials.

**Faculty of Mathematics and Physics**
In most cases the universities have successfully cooperated on exchange student programmes, thus facilitating academic and cultural interchange, the exchange of research materials, information, knowledge and publications between the universities and also creating cooperation on scientific level. Inter-institutional Agreements will lead to professional cooperation. The purpose will be to organize for training visits between academic staff, share academic materials, collaborative research and publications, joint production and delivery of courses and program.

### 3. Quality of project design and implementation

**First Faculty of Medicine**
A PhD student with previous experience in gynaecological oncology will initiate collaboration in Translational Research Program as well as ultrasound implementation strategy and will assemble common clinical database of ovarian cancer patients. Academic support from both institutions will result in research papers and presentations in European and world congresses. (for detailed information please see the enclosure nr. 1) The participants will be selected based on previous experience with the PhD students participating in the specific research projects.

**Second Faculty of Medicine**
The candidate will spend two months at the host institution under the supervision of prof. Stephen Stick and prof. Peter Sly, who are the two leading scientists at the paediatric department of the UWA. He will participate in their everyday clinical and research programme and work mainly in the pulmonary function laboratory.
Faculty of Pharmacy in Hradec Králové

This mobility projects is primarily aimed at improvement of research collaboration between Faculty of pharmacy and mentioned universities in Australia with high potential to improve as well the education of students at participating universities due to spreading of recent research outcomes by seminars and lectures. The mobility will include both PhD students (research internship) and supervisors (education, seminars and lectures). Participants will be rigorously selected from laboratories participating on the project. Ph.D. students mobility will be part of their study – automatic recognition of mobility period. PhD stays are planned in the period of 3-12 months to allow PhD students finish the planned experiments, to evaluate results and prepare them for publication.

Based on our previous two bilateral cooperation projects with Argentina and one cooperation project with USA, the research will be described in detail in the respective agreement. The research with University of Sydney will continue in the subject of drug research. The continuing joint-research with University of Melbourne will be based on automation of sample pre-treatment methods using low pressure flow techniques – mainly extraction and diffusion through semipermeable membranes will be developed, research in University of Tasmania will be carried out on the preparation of analytical microdevices used for analysis of biological samples. Mobility project will carry out the planned experimental work following the discussions in frames of Horizon 2020 proposal preparation.

In summary, both Ph.D. stays and faculty staff exchanges are aimed at intensification of education outcomes and research collaboration between participating universities in the field of drug research and analytical chemistry.

Faculty of Social Sciences

Both, students and staff cooperation is based first on selection process according to local rules with respect to partners demands and needs, then sending them to partners country (no scholarship and accommodation assistance ix expected). Recognition of the mobility period will be made in mutual accord through the memorandum of understanding describing details of cooperation including grading, system of awards, transcripts issuing etc. Besides solidifying student mobility and extending it more substantially to the Ph.D. level, the project aims at developing the cooperation from individual teaching and research stays to joint research projects in the areas of mutual interest (peace and conflict studies) and eventual plans for a double or joint degree.

Existing student exchange which has turned out most relevant and useful for our graduate students, especially those working on security related topics such as peacekeeping, should be extended to include stays by Ph.D. candidates interested in the Asia-Pacific region and its various complexities. The project would also propose regular visiting teaching stays by academic staff from the proposed universities. Once established, this cooperation should turn into direct personal contacts between researchers of both institutions, helping them identify common research themes which could then be turned into common research projects. Given the complementarity of the teaching curricula at both institutions, the cooperation should lead to discussions concerning a double or joint degree.

Faculty of Education

The participants moving in both directions, in addition to Professors Novotna and Clarke, would include research colleagues and research students from both universities.

The key visit that is anticipated in this application will occur as the International Lexicon Project moves from its local (national) phase to its international integration phase. Ideally, at least two visits by Professor Novotna to Melbourne would be ideal in the facilitation of this process. One in second half of November in 2015 and another at the same time in 2016. It is intended that representatives of the other 7 participating research teams (from Chile, China, Finland, France, Germany, Japan and the USA) would also be present in Melbourne, supporting a significant level of international research interactivity and collaborative productivity.
Australian research funds can meet some costs related to this meeting, while participating international collaborators will also be expected to contribute by meeting their own travel costs. The cost of reciprocal visits by Professor Clarke and/or members of his research team to Prague would be met from Australian funds, although some contribution to accommodation costs in Prague would be appreciated. As noted, the participants moving in both directions, in addition to Professors Novotna and Clarke, would include research colleagues and research students from both universities.

**Faculty of Science**
**ANALYTICAL CHEMISTRY**
Further cooperation is envisaged based on the results of pilot mobility project. This cooperation should focus on application of nanomaterials in electroanalytical chemistry of biologically active organic compounds. Selection of participants in those planned projects will be based on critical evaluation of their capabilities and both hard and soft skills.

**Faculty of Mathematics and Physics**
Vision of exchange students leading to academic and cultural interchange and even to future cooperation on edge cutting projects in modern physics, maths and computer science. As for the implementation, there is a selection process set, exchange students are required to must have completed at least one year of tertiary studies prior to commencing studies at the host institution. Must have excellent academic results, deep interest in the fields’ of expertise. All parties also impose language requirements and other requirements. Only academic staff with deep expertise at partnering institutions will be selected to participate at classes as lecturers. Staff attending classes to deepen their knowledge, skills and expertise will participate at such classes which are relevant to their field of scientific expertise. Both parties will support the academic staff in terms of onsite support and any stay related issues.

### 4. Impact and dissemination

**First Faculty of Medicine**
Transcontinental cooperation bringing together top gynaecological oncology centres will produce innovative strategy in early detection of ovarian cancer using translational research. (for detailed information please see the enclosure nr.1) The planned mobility project is expected to provide unique opportunity to further strengthen collaboration of the Partners, to exchange know-how, improve skills of students and make progress in specific research topics, which Partners are collaborating in.

**Second Faculty of Medicine**
The candidate will immediately implement all the newly gained expertise in our pulmonary function laboratory and within our research team. The standardized methods of investigation will be disseminated also within the whole Czech scientific community working with the patients suffering from cystic fibrosis.

**Faculty of Pharmacy in Hradec Králové**
Participants from Czech Republic would benefit from learning novel techniques, working in an international team in one of the leading laboratory focused on development of novel anticancer agents or analytical chemistry. All universities will benefit from the establishment of novel joint project and spreading of recent finding in particular in the field of pharmacology and analytical chemistry (lectures and seminars given by researchers at partners universities). Results of the experimental work carried out in frames of both stays of PhD students will be presented in the international conferences and published in journals with impact factor.
Faculty of Social Sciences
Dissemination seems to be organized through established academic and national structures. The proposed project aims at establishing a long-term, extensive mobility and cooperation scheme that will ensure swift, unhindered transfer of knowledge and research best practices from the Australian partner to the Institute of Political Studies.

So far, mobility between the Faculty of Social Sciences and its Australian counterpart has been limited and, furthermore, without the objective of gradual intensification of such cooperation. The proposed project should lead to a more sustainable arrangement with full participation of academic employees. Apart from expanding the opportunities for students to spend a substantial part of their graduate or postgraduate period at a renowned Australian institution, the sustainability component will be ensured by the focus on gradual development of peer-to-peer research cooperation and plans for a possible joint teaching arrangement.

The possibilities for student exchange will be communicated through existing and well established faculty channels. On the other hand, the department will play a crucial role in motivating, stimulating and steering its academic staff into investing necessary effort and energy into establishing mutual contacts with their Canadian counterparts. The result should be a web of regular contacts at a working level that will ensure the continuing relevance of the proposed mobility arrangements.

Faculty of Education
The intended impact will be in broadening the so far very successful cooperation and giving the chance also to students to spend their mobility in Australia. The project is anticipated to be very visible, mainly through publications and through the establishment of the public access website. This form of international research collaboration has already demonstrated its effectiveness through the (on-going) Learner’s Perspective Study (LPS), generating five books and numerous research papers in prominent journals. The International Lexicon Project is anticipated to be as visible, through publication and through the establishment of the public access website, by which each participating country’s National Lexicon will be made available to researchers, teacher educators, schools and classroom teachers around the world. The history of the LPS has already demonstrated the capacity of Professors Novotna and Clarke to achieve this level of international impact. It is a noteworthy example that in the recent publication of the Third International Handbook in Mathematics Education, the Learner’s Perspective Study was more frequently cited than either the TIMSS or PISA studies. It is our belief that the form of international exchange and collaboration that proved so successful in the past will be similarly successful in this case. Central to this is the support needed for Professor Novotna to spend time at the University of Melbourne, collaborating with Professor Clarke and his team and informing the international research activities of the Lexicon Project community.

Of course, the findings of this collaborative research activity will be presented at many major international conferences in Europe, the USA and Asia.

Faculty of Science
ANALYTICAL CHEMISTRY
Envisaged broadening of cooperation with top Australian universities in the field of nanoelectroanlytical chemistry will greatly improve the quality of research in UNESCO Laboratory of Environmental Electrochemistry in Prague. Australian laboratories will profit from possible visits of Czech students with sound theoretical and experimental backgrounds in classical electroanalytical methods which should result from these pilot mobility experiments.

Faculty of Mathematics and Physics
Students with opportunities of studying abroad at top partnering universities which have great impact on world science does motivate, educate and prepare future and current scientists in contributing to modern science on both local and international level. International cooperation between universities and scientists should in principal lead to current and future international
cooperation and activities contributing to the universal good as it is students promise and the fundamental mission of Faculty of Mathematics and Physics, Charles University in Prague. The mobility project supports a cooperation of partner institutions; allow better data acquisition and reduction as well as a joint publication of common results incl. international scientific journals and at International conferences. The results will be disseminated by lectures, publications in journals, lecture notes and web pages. Also, outreach activities aiming at general and academic public with the aim of explaining benefits of this kind of mobility will be executed.