

Prof. Dr. James Kennedy
Grupo de Física Matemática
Faculdade de Ciências da Universidade de Lisboa
Campo Grande, Edifício C6
P-1749-016 Lisboa, Portugal

Mojca Vilfan
University of Ljubljana
Faculty of Civil and Geodetic Engineering
Kongresni trg 12, 1000 Ljubljana, Slovenia

**FAKULTÄT FÜR MATHEMATIK UND
INFORMATIK**

Lehrgebiet Analysis

Auskunft erteilt:
M. Sc. Patrizio Bifulco
Universitätsstraße 11, Gebäude 3, OC411
58097 Hagen
Fon: +49 2331 987-4878
patrizio.bifulco@fernuni-hagen.de

14.11.2022

Grant Application

Dear Professor Kennedy, dear Ms. Vilfan,

From October 26th until October 28th I visited my current co-author Dr. Oliver Krebs at the department for „Applied Economics: Innovation and Internationalization“ of the ETH Zurich to discuss new ideas concerning our current research project together with Jun.-Prof. Dr. Jochen Glück from the University of Wuppertal and Dr. Bohdan Kukharsky from the City University in New York. More precisely, our project deals with the uniqueness and stability of economic equilibria within networks under certain monotonicity assumptions. A first result of this project has already been published on arXiv (see arXiv:2209.02635) and it was the main goal of my visit to develop new ideas in order to possibly submit a new, more detailed version of our current working paper, which above all allows the application of a much wider range of economically motivated models.

Indeed, my visit was very successful. Through the personal meeting, Oliver and I were able to discuss new models coming from trade economics in a more detailed way and we were then even able to formulate a more general version of our mathematical theorem, which is already available in the first version of our working paper. Thus, in this short term project, the development of abstract theory on the one hand, but also the subsequent concrete application of this theory to situations in our everyday life went hand in hand. In particular, we hope to be able to make a significant contribution to the modeling of current topics such as CoViD 19 or the currently prevailing gas shortage.

At the moment, my co-authors and myself are already working on the elaboration of our ideas developed in Zurich in a new version of our working paper in order to then publish it in the „Econometrica-Journal“, which is currently one of the leading economic journals. Furthermore, through this short project I also came into contact with other economists at the ETH Zurich in order to possibly introduce further research projects in the future in which scientists from application and theory come together to study further exiting questions within current politics.

In summary, my visit was very successful and I hope that I can continue to work together with scientists

coming from economy or even from the industry itself, in the future.

With kind regards



Patrizio Bifulco