



Bachelor or Masters thesis

Decision support tools for space megaprojects

Supporting Arms Control in Space (SACS) - Junior Research Group
Faculty of Social Sciences & Faculty of Aerospace Engineering

Description of proposed topic

Large-scale space projects (e.g. lunar settlement, space-based solar power, space exploration) are highly ambitious but also very costly. A key research question is therefore: under what conditions (technological, economic, etc.) is the deployment of such projects meaningful? This question can be answered using a combination of quantitative mathematical and computational modelling, as well as qualitative methods drawn from foresight and futures studies.

Thesis topic

In the context of the above, the interested student shall:

- perform a literature research on the topic,
- develop tools based on quantitative and qualitative models to assist in decision making in deploying space megaprojects,
- apply these tools for a selected simplified case study (e.g. lunar resource utilisation),
- perform a sensitivity analysis for the case study results

The thesis would be mostly performed remotely, with occasional visits to the UniBw Campus in Neubiberg.

Skills Required

- Motivation, creativity and enthusiasm for this crucial topic
- Basic knowledge of space engineering
- Basic/advanced programming knowledge (e.g. in Python)
- Excellent command of the English language (written/spoken)
- Self-management and organisational skills

Supervisor

Dr.-Ing. Konstantinos Konstantinidis
SACS Junior Research Group
konstantinos.konstantinidis@unibw.de