



Subject: Bachelor / Master 's Thesis

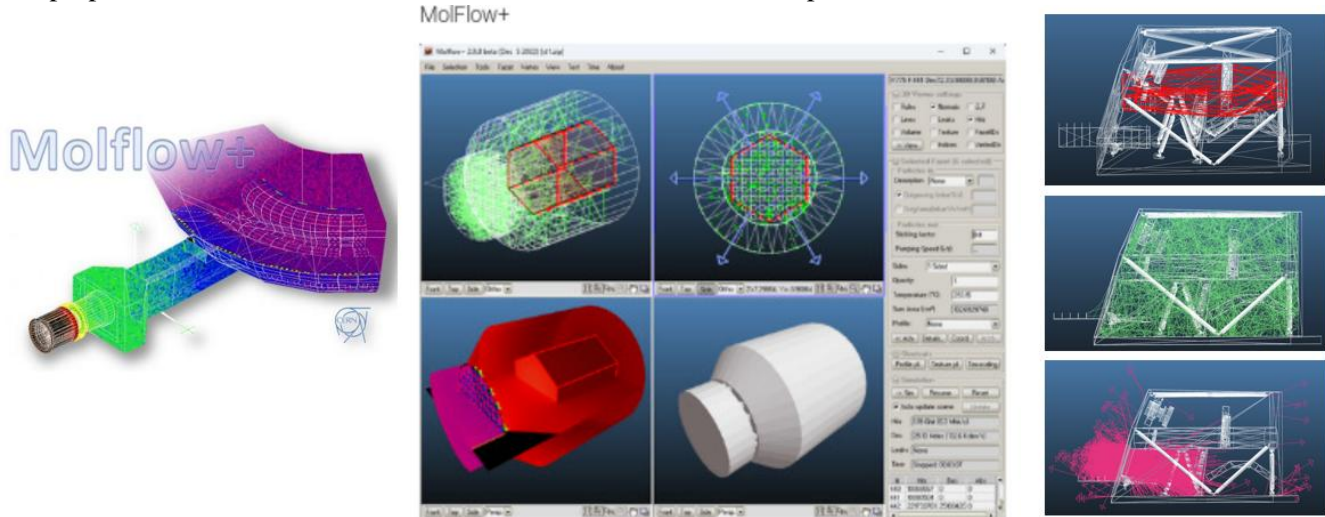
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## MOLFLOW space: Modeling of chemical cross contamination in Space

### 1.1 Context

OHB System AG is one of Europe's leading space companies. The system provider is part of the publicly listed high-tech group OHB SE, where nearly 3,000 highly qualified employees work on major European space programs.

Inside a new car or when opening brand-new components, one can perceive a variety of odors. While this may encourage purchasing on the one hand, it also leads to unwanted deposits on the surfaces of optical systems, which impair their function. This effect is further amplified in satellite systems, since many composite materials are used, the effect in a vacuum is extremely strong, and the optics are exposed for very long periods. To counter this risk, the lifespan of satellites in space is modeled using the simulation code "MOLFLOW", which was developed together with CERN. For this purpose, materials are characterized before construction with respect to their release of substances.



**Goal:** According to the specifications of the OHB and CERN expert group, the tool shall be expanded to be capable of new functions, implementing state of the art modelling approaches for in-orbit outgassing. This includes an interface to be programmed that records the given running parameters and outputs them after the completed modeling – enabling the optimal use of these new functionalities within the satellite development cycle.

### 1.2 Your profile

In general, many of the skills required to carry out this work can be learned "on the fly." Beneficial prior knowledge:

- Python
- Working with CAD tools

### 1.3 Miscellaneous

It is expected that the work will be carried out in accordance with the principles of good scientific practice. This means that all work must be carefully, transparently, and reproducibly documented. The thesis can be written in either German or English. The detailed task can be discussed and adapted accordingly.