

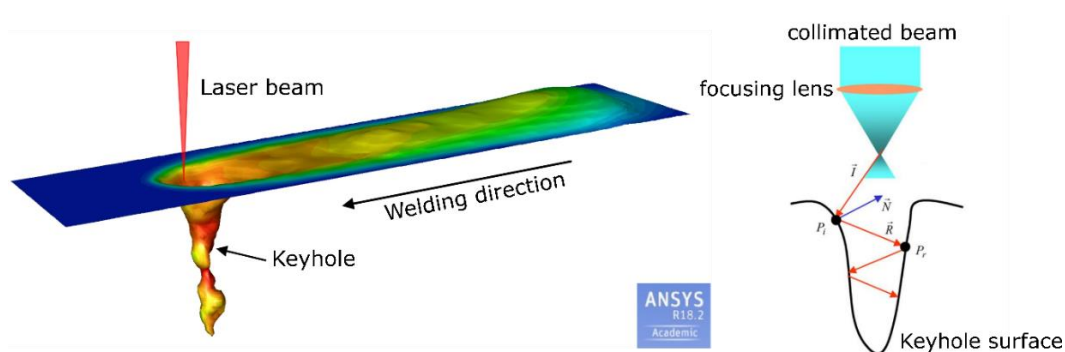
Masters project

A master thesis in the federal institute for material research and testing, division 9.3 „Welding technology“ in Berlin-Lichterfelde is announced:

„Development of a ray tracing model for application in high power laser beam welding“

The energy input plays a crucial role in the quality of laser materials processing. To improve the understanding of the energy distribution, modern methods such as ray-tracing are being developed. These serve as a foundation for further exploration of various physical phenomena and defects, e.g. keyhole evolution in high power laser beam welding.

Within the scope of this thesis a ray tracing model and different benchmarks for verification should be developed. It is first necessary to identify influencing parameters on the propagation of the laser beam and to make adequate simplifications in order to be able to create a realistic model. Further, the model should be combined with already existing thermo-hydrodynamic model of a deep penetration laser beam welding process implemented within the commercial finite volume method software Ansys Fluent to investigate the energy distribution in the keyhole.



We are looking for a student with a technical orientation in the study (informatics, mechanical engineering, engineering science or similar). You have in-depth knowledge in the finite-volume and finite element method, have already gained experience with C programming language and are committed and motivated? You can also show good to very good study results?

Then we look forward to receiving your application (cover letter, CV, certificates, etc.)! Further information can be obtained by phone or e-mail.

A payment for working on the master thesis cannot be granted.

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