

Coupling of lasers to the UHV of storage ring

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The Technical Design Reports: SPARC@HERS:Instrumentation approved by the Expert Committee Experiments (ECE) on 22 Jan 2016 establishes a large group of Institutes, including National Institute for Laser, Plasma and Radiation Physics (INFLPR), distributed over the subjects Laser Spectroscopy, Intense Laser/Ion Interaction and Laser Cooling. More than 70 researchers, including the INFLPR researchers are listed as participants for these subjects.

The development of new lasers with novel sources like soft-X-ray lasers or high average power XUV-lasers require specific technical design for the coupling module to the storage ring and for the corresponding differential pumping stages (including the turbo pumps). In collaboration between the Institute of Applied Physics (FSU & HI Jena) and the INFLPR, existing data in conjunction with new experimental tools will be used to establish technical issues and requirements and workout the design of an appropriate optical experiment coupling the new XUV source and the storage ring. As a next step we will carry out the commissioning of the experimental setup configuration which will be the XUV-storage ring coupling unit. Preliminary technical specifications and requirements of an appropriate solution for coupling of lasers to the UHV storage ring will be presented here.

Beside the main contribution to the design work, further works are needed in support of the experiment proposed by SPARC. A summary of theoretical and experimental works performed at INFLPR in support of SPARC@FAIR will also be presented.

Collaboration

SPARC

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