The **PEPR ORIGINS/FlexSiMirror** project is offering a **Post Doctoral or Optical Engineer Position** funded by the PEPR Origins Programme (https://pepr-origins.fr/)

Designing & Developing an Optical Bench for Fast Wavefront Metrology based on a Mach-Zehnder Interferometer

(CRAL/CNRS – Saint-Genis Laval)

Project Overview: The FlexSiMirror project aims to revolutionize DM technology by developing a new hybrid deformable high-speed, lightweight, large, and low-cost mirror. The project combines instrumental and conceptual expertise to address the astrophysics challenge of detecting exoplanets using electroactive polymer (EAP) doped materials and self-supported silicon membrane technology. This advancement will pave the way for cost-effective and lightweight optoelectronic systems, significantly impacting exoplanet studies towards the Extremely Large Telescopes (ELTs).

https://pepr-origins.fr/projet/-miroirs-deformables-de-haute-precision-et-legers-a-base-de-silicium/

Research Objectives: The 24-month Post-Doctoral or Optical Engineer position is aimed at ensuring the design, operation, and development of advanced experimental devices specialized in optical instrumentation for astronomy. The candidate will be responsible for the optical characterization of new active and deformable mirror technologies as part of two innovative research projects – the European Horizon EIC Live-Mirror and France 2023 PEPR Origins/FlexSiMirror – with Dr. G. Moretto serving as the PI and coordinator for both projects.

Main Activities: (1) Study scientific needs and develop appropriate measurement and characterization techniques and methods. (2) Analyze metrological constraints and design or upgrade the measurement chain. (3) Organize the follow-up of the realization, validate and qualify the device at its different stages. (4) Participate in the performance of measurements and validate them. (5) Draw up technical specifications and performance matrix. (6) Manage and control the integration of systems and sub-systems. (7) Validate and qualify the instrument at its various stages.

Main Skills and Knowledge: (1) In-depth optical engineering techniques and sciences knowledge. (2) Proficiency in tools and software specific to the field, including optical design (Code V, ZEMAX) and polarization modelling. (3) Basic understanding of optical calculation methods for scattered light. (4) In-depth knowledge of experimentation in optical

instrumentation and metrology. (5) Preferable experience with instrumentation for optical metrology and adaptive optics. (6) Strong written and oral presentation skills. (7) B2 level of proficiency in the English language according to the Common European Framework of Reference for Languages.

Where in the Consortium: The position will be held at the CRAL/CNRS Saint-Genis Laval in close collaboration with Maud Langlois and Gil Moretto.

Candidate Profile: We seek a highly motivated and talented post-doctoral candidate with a strong background in optics and a keen interest in new optical and smart materials technologies. The ideal candidate will have experience with electronics control and advanced optical metrology, with an interest in astronomical instrumentation being advantageous. Self-motivation is necessary for adapting and performing with the PEPR Origins FlexSiMirror in our interdisciplinary research lab.

Application Process: Interested candidates should submit their application, including a CV, cover letter, and at least two reference letters, to Dr. Gil Moretto (Gil.Moretto@cnrs.fr) and Dr. Maud Langlois (Maud.Langlois@univ-lyon1.fr).

The Deadline for applications is the 20 August, 2024.