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**Subject: Spring/summer internship positions in computational material science at UCLA
“Predicting the Mechanical Properties of Disordered Silicate Materials by Machine Learning”**

We have internship positions available in computational material science, with a focus on silicate glasses’ mechanical properties, molecular dynamics simulations, and machine learning. The candidate will work in the group of Prof. Bauchy at the University of California, Los Angeles, in strong collaboration with computational and experimentalist students/postdocs/faculty in the department.

Glasses play a critical role in modern society (fiber optics, bioactive glasses, protective screens for handled devices, etc.). However, their range of application remains limited by their high brittleness. The design of stronger, tougher, and harder glasses requires an accurate understanding of how the composition of glass controls its mechanical properties. The proposed project aims to develop a model predicting the mechanical properties (stiffness, hardness, and toughness) of calcium aluminosilicate glasses. The selected student will be expected to conduct high-throughput molecular dynamics simulations and subsequent data analysis. The generated data will be used to train a predictive model using a novel kind of physics-informed machine learning based on constrained artificial neural networks.

Applicants should have a fundamental understanding of condensed matter and scientific programming. Experience in atomistic simulations, glass science, or machine learning is a plus. Applicants of all levels can be considered, provided they meet the previous requirements. Applicants who are able to devote a minimum amount of time for the internship will be given priority. We expect that only internships lasting more than 5 months can lead to reasonable training and results. However, shorter internships can be considered depending on the experience of the applicant. The work will be expected to result in at least one scientific publication, written in collaboration with the rest of the group. Exceptional students might eventually be considered for graduate/Ph.D. positions at UCLA.

If you meet the above requirements and are interested in this position, then please provide a detailed description of your academic background and a short personal statement explaining your motivation to join the group. Applications, or questions about the position, should be sent by email, with the required documents in PDF format, to Prof. Bauchy at bauchy@ucla.edu. International students should apply early enough for their visa to be issued.

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