Dynamical States of Driven Few-Ion Crystals

Vaibhav Mahendrakar[1†], **A. Ayyadevara**[1], **A.Baganali**[1], **J.Hazra**[1], **S. A. Rangwala**[1]

[1]Raman Research Institute, C. V. Raman Avenue, Sadashivanagar, Bengaluru 560080, India

We simulate the dynamics of few-ion crystals driven away from equilibrium through controlled, asymmetric dissipation [1]. They indicate a transition from a minimum energy configuration to persistent collective motion. We characterize the resulting states and their dependence on the competing dissipative processes and the underlying trap confinement. Our results demonstrate how controlled driving can generate sustained non-equilibrium states [2] in a few-body Coulomb system. The latest simulation and the experimental results will be presented in the poster.

References

[1] C. F. P. Avalos, G. A. Prataviera and M. C. de Oliveira. 2025 *arXiv* **2512.18481** 23 Dec 2025

[2] Tony E. Lee and M. C. Cross. 2011 *Phys. Rev. Lett.***106** 143001

[†]E-mail: mahendrakar@rrimail.rri.res.in