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Kinetic Simulations – Oshun (Vlasov-Fokker-Planck) and PIC (Osiris) – Physics and Open Source Software In The UCLA PICKSE Initiative. ADAM TABLEMAN, MICHAIL TZOUFRAS , UCLA Department of Physics and Astronomy, RICARDO FONSECA, IST - GoLP, Portugal, W.B. MORI , UCLA Department of Physics and Astronomy — We present physics results and general updates for two plasma kinetic simulation codes developed under the UCLA PICKSE initiative. We also discuss the issues around making these codes open source such that they can be used (and contributed too) by a large audience. The first code discussed is Oshun – a Vlasov-Fokker-Planck (VFP) code. Recent simulations with the VFP code OSHUN [1] will be presented for all of the aforementioned problems. The algorithmic improvements that have facilitated these studies will be also be discussed. [1] M. Tzoufras, A.R. Bell, P.A. Norreys, F.S. Tsung, JCP 230 (17), 6475-6494 (2011); M. Tzoufras, A. Tableman, F.S. Tsung, W.B. Mori, A.R. Bell, Phys. Plasmas 20, 056303 (2013) The second code discussed is the PIC code Osiris. Osiris is a widely respected code used in hundreds of papers. Osiris was first developed for laser-plasma interactions but has grown into a robust framework covering most areas of plasma research. One defining feature of Osiris is that it is highly optimized for a variety of hardware configurations and scales linearly over 1 million+ CPU nodes. We will discuss the recently released version 4.0 written in modern, fully-object oriented FORTRAN.

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