

Abstract Submitted
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Planetary multi-electron atoms as fully controlled Wigner crystal clusters MATT KALINSKI, Utah State University — We consider highly excited multi-electron atoms in both the circularly polarized and the strong magnetic fields. Following our work on the two electron Langmuir configurations [1] we discover that a variety of static electron configurations is possible for n -electrons for Z_n charged ions. The simplest originate from the Jupiter ring or the Kuiper belt-like configurations. Those configurations may exhibit highly exotic stability islands, when the Lyapunov coefficients for classical trajectories are purely imaginary numbers. Those stability islands may be considered as discrete transitions to multidimensional variables of the Cantor set describing the mass distribution in Kuiper belt and the Jupiter ring.

[1] M. Kalinski, L. Hansen and D. Farrelly, Phys. Rev. Lett. 95, 103001-1, (2005).

Matt Kalinski
Utah State University

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