

2021 Rubin Prize Winner - Ann-Marie Madigan

published by kat.volk on Fri, 2021/05/21 - 12:27pm



The American Astronomical Society's Division on Dynamical Astronomy (DDA) is pleased to

announce that the 2021 recipient of the Vera Rubin Early Career Award is [Professor Ann-Marie Madigan](#) [1] of the University of Colorado, Boulder for her work on the dynamics of near-Keplerian systems composed of objects that are individually small, but collectively massive.

Professor Madigan earned her Ph.D. from Leiden University in 2012 under the direction of Prof. Yuri Levin, then held postdoctoral fellowships at the University of California, Berkeley, before her appointment as an assistant professor at CU Boulder in 2016. Her work spans a wide range of astrophysical and planetary sciences, from the dynamics of stars and gas around supermassive black holes to the collective gravity of minor planets in the outer solar system.

Interactions between stars and their remnants with supermassive black holes produce exotic astrophysical events including tidal disruptions of stars, ejections of hyper-velocity stars into a galactic halo, and gravitational-wave-driven inspirals of compact objects into the central black hole. Professor Madigan has advanced our understanding of the statistical properties of the orbits of stars around these supermassive black holes, the interaction of intermediate black holes with supermassive black holes, and the stability of stellar disks in active galactic nuclei. Her work also probed the formation history of stars near galactic nuclei, the evolution of their orbits, and the mechanism by which they can be disrupted and ultimately captured by the central black hole. She has further applied her knowledge of near-Keplerian systems to other scales; she has suggested of a possible mechanism by which the observed alignments of the orbits of long-period Kuiper belt objects in the Solar System could arise, and suggested that the mutual gravity of comets could cause a periodic influx of comets into the inner Solar System.

Professor Madigan will be invited to give a lecture at the 53rd annual DDA meeting in the spring of 2022.

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