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Cusps, dynamical friction, and resonances

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Abstract We make a detailed study of resonances occurring inside a cuspy dark matter halo when a satellite orbits around it and sinks due to the dynamical friction. Using different numerical techniques we find that resonances strongly affect the response of the halo. The crucial issue for understanding the dynamical friction is appearance of overlapping resonances for trajectories of dark matter particles, which cross the orbit of the satellite.