

# YORP IN THE PRESENCE OF SURFACE ROUGHNESS

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Available models of the Yarkovsky and YORP effects do not account for the observationally well known infrared 'beaming effect,' which is generally attributed to surface roughness. Beaming causes a preferentially sunward emission, thereby changing the direction and absolute value of the net photon-induced force and torque. I present a simple and usable rough-surface model for the YORP-torque component parallel to the spin axis, which is responsible for spin rate changes. Since this component is known to be independent of thermal inertia, all calculations can be performed assuming zero thermal inertia, which is computationally very advantageous. Observable effects of the rough-surface YORP model are discussed. Possible model extensions, e.g. to the Yarkovsky effect, are suggested.