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Triaxial modeling of elliptical and barred galaxies

The mass distribution in galaxies is often triaxial: a large fraction of spirals have bars and massive ellipticals deviate from axisymmetry. Nevertheless, the dynamical modeling that has been used in the last twenty years to measure the dark matter content or the mass of the central black holes in galaxies has almost always assumed axisymmetry. As a consequence, mass estimates could be easily biased by factors of two. We aim at solving this problem by developing a triaxial Schwarzschild code. We start from our axisymmetric version, which we used in our dynamical studies of the last 10 years. In a first step we construct an orbit code in a time-independent triaxial potential, determined from the solution of the Poisson equation of the deprojected stellar luminosity. In a second step we allow for a further parameter (the rotation speed of the bar) to be determined as part of the fitting procedure to the measured kinematics. Finally, we will reanalyze the kinematics of several galaxies where obvious triaxiality has been ignored.