Black holes parameters from redshifts and blueshifts of photons emitted by geodesic particles orbiting around them.

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We show how to determine the parameters of an axially symmetric compact object in terms of the measurable redshift-blueshift (z_{red}, z_{blue}) of photons emitted by particles moving along circular geodesics and the radius (r_c) of their orbits. Particulary, the mass $M = M(z_{red}, z_{blue}, r_c; p)$ and rotation $a = a(z_{red}, z_{blue}, r_c, p)$ parameters for rotating space-times can be found; p stands for additional parameters. We consider the Kerr and Kerr Newman black holes as working examples. In addition, we compute the mass parameter $M = M(z_{red}, z_{blue}, r_c; p)$ of nonrotating axially symmetric space-times. As working examples, we deal with the Schwarzschild and Bonnor metrics. In every case, it turns out that there exist bounds for the values of (z_{red}, z_{blue}), these bounds are analytically or numerically found. This method can be employed to test the nature of the black hole assumed to be at the center of our galaxy.