

VARIATIONALITY OF CONFORMAL GEODESICS IN DIMENSION 3

BORIS KRUGLIKOV, VLADIMIR MATVEEV, WIJNAND STENEKER

ABSTRACT. Conformal geodesics form an invariantly defined family of unparametrized curves in a conformal manifold generalizing unparametrized geodesics/paths of projective connections. The equation describing them is of third order, and it was an open problem whether they are given by an Euler–Lagrange equation. In dimension 3 (the simplest, but most important from the viewpoint of physical applications) we demonstrate that the equation for unparametrized conformal geodesics is variational.