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Giulia Sacca*, giulia.sacca@gmail.com, and **Enrico Arbarello**. *Singularities of moduli spaces of sheaves on K3 surfaces and Nakajima quivers varieties*. Preliminary report.

We establish the semistability of Lazarsfeld-Mukai bundles for some class of rank zero sheaves on a K3 surface and show that this implies the formality of the versal deformation space of these sheaves. As a consequence, we give examples of moduli spaces of rank zero sheaves on a K3 surface which, locally around their most singular points, are isomorphic to a quiver variety in the sense of Nakajima. The singularities of these moduli spaces arise from the choice of a specific polarization and admit natural symplectic resolutions. These correspond, via the above isomorphism, to natural symplectic resolutions of the quiver variety. (Received August 20, 2013)