Spectral properties of reducible spherical conical metrics

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This talk will focus on the recent work, joint with Rafe Mazzeo and Bin Xu, on the spectral properties of constant curvature metrics with conical singularities on surfaces. We will focus on a special class called spherical conical metrics with reducible monodromy. We obtain a spectral characterization of the monodromy property, which establishes a new connection between the geometric microlocal analysis which is about the study of singular operators, and the classical complex analysis approach that uses the developing maps. Those spectral properties help us to understand the moduli spaces of spherical conical metrics, which have seen a lot of recent development and yet there are still a lot of open problems.