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Generalized spacetimes with quantum singularities[1] DEBORAH A. KONKOWSKI, U. S. Naval Academy, THOMAS M. HELLIWELL, Harvey Mudd College — Levi-Civita and Raychaudhuri spacetimes are generalized with the addition of disclinations and space-like and time-like dislocations. These new solutions to Einstein's Field Equations are then tested for classical and quantum singularities. Whereas a classical singularity is present if there are incomplete geodesics or incomplete curves of bounded acceleration in these otherwise maximal spacetimes, a quantum singularity is said to be present if the propagation of a quantum wave packet is ill-posed (in particular, if the Klein-Gordon wave operator is not essentially self-adjoint). We find that in these generalized spacetimes classical quasiregular and scalar curvature singularities are mirrored by generic quantum singularities.

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Deborah A. Konkowski
U. S. Naval Academy

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