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Effective Raychaudhuri equation and black hole singularity resolution

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We derive Loop Quantum Gravity corrections to the Raychaudhuri equation in the interior of a Schwarzschild black hole and near the classical singularity for several schemes of quantization. We show that the resulting effective equation implies defocusing of geodesics due to the appearance of repulsive terms. This prevents the formation of conjugate points, renders the singularity theorems inapplicable, and leads to the resolution of the singularity for this spacetime.

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