Energy multipliers for Perturbations of Schwarzschild metric

We consider the wave equations associated to metrics close to Schwarzschild metric. We investigate spacelike energy multipliers likely to yield local decay of solutions to these wave equations, in the spirit of Morawetz.For rotationally invariant metrics, we obtain multipliers giving a control of the solutions having finitely many vanishing spherical harmonics. The structure of these multipliers is closely related to the photosphere of the metric. For Kerr metrics, in constrast, we display a region, which we call the intersphere region, where no energy inequality with the required properties can exist.