

## C3 matching conditions in relativistic astrophysics

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We propose an alternative method to solve the problem of matching two solutions of Einstein equations along a matching surface. It is based upon the use of the eigenvalues of the Riemann curvature tensor, which are required to coincide along the matching surface. In addition, the extrema of the eigenvalues are used to determine the minimum radius of the matching surface, a procedure that involves third-order derivatives of the metric tensor (C3 matching). In the case of spherically symmetric spacetimes, the C3 matching leads to physically meaningful results, whereas other matching procedures permit non-physical junctures.

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