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The onset of spontaneous scalarization in generalised scalar-tensor theories

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In gravity theories that exhibit spontaneous scalarization, astrophysical objects are identical to their general relativistic counterpart until they reach a certain threshold in compactness or curvature. Beyond this threshold, they acquire a non-trivial scalar configuration, which also affects their structure. The onset of scalarization is controlled only by terms that contribute to linear perturbation around solutions of general relativity. The complete set of these terms has been identified for generalized scalar-tensor theories. Stepping on this result, we study the onset on scalarization in generalized scalar-tensor theories and determine the relevant thresholds in terms of the contributing coupling constants and the properties of the compact object.

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