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Stationary two-black-hole configurations: A non-existence proof for disconnected horizons

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We resume former discussions of the question, whether the spin-spin repulsion and the gravitational attraction of two aligned black holes can balance each other. Based on the solution of a boundary problem for disconnected (Killing) horizons and the resulting violation of characteristic black hole properties, we present a non-existence proof for the equilibrium configuration in question. From a mathematical point of view, this result is a further example for the efficiency of the inverse ('scattering') method in non-linear theories.