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Search for neutral Higgs bosons decaying into four taus at LEP

A search for the production and non-standard decay of a Higgs boson, h, into four taus through intermediate pseudoscalars, a, is conducted on 683 pb−1 of data collected by the ALEPH experiment, at centre-of-mass energies from 183 to 209 GeV. No excess of events above background is observed, and exclusion limits are placed on the combined production cross section times branching ratio, ξˆ2 = σ(e+ e− ⟶ Zh)/σ_SM(e+ e− ⟶ Zh) × B(h ⟶ aa) × B(a ⟶ tau+ tau−)ˆ2 . For m_h < 107 GeV/cˆ2 and 4 < ma < 10 GeV/cˆ2 , ξˆ2> 1 is excluded at the 95% confidence level.

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