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**Kanagaratnam Arunakirinathar\*** (aruna@ukzn.ac.za), Howard College Campus, Durban, 4001, South Africa. *Interpolation error estimates for hexahedral finite elements: geometrical approach.*

A hexahedral finite element may be regarded as a perturbation of its associated equivalent parallelepiped, which has very interesting geometrical properties. Using its equivalent parralelipiped, I define a regular family of hexahedral finite elements. This definition is used together with other properties to obtain in a relatively simple manner estimates, in appropriate seminorms or norms, of the isoparametric map and its Jacobian, for use in the determination of finite element interpolation error estimates. (Received September 23, 2009)