On the Integral Type Crouzeix-Raviart Nonconforming Finite Elements

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We analyze some approximation properties of nonconforming piecewise linear finite elements. These elements use integral degrees of freedom which yield superclose properties and that is why they are more appropriate for postprocessing procedures. The approximate eigenvalues obtained with this method dive asymptotically lower bounds of the exact eigenvalues. Finally, computational aspects are discussed and numerical examples are presented.