

Stability of the Ritz projection on convex polyhedral domains

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The main focus of my talk is the stability of the Ritz (elliptic) projection on convex polyhedral domains in L^∞ norm. Since the stability is equivalent to the best approximation, such results are desirable in many applications where the regularity is an issue or the error needs to be expressed in terms of data, for example in optimal control problems. In the first part of my talk I review the stability of Ritz projection in various norms and then discuss our contribution to the subject. In the second part of my talk I will go through the main ideas of the proof and list some open problems. If the time permits, I will also discuss how such results and ideas can be applied to establishing the best approximation property of fully discrete Galerkin solutions to parabolic problems.