On the DPG method for plate problems

Norbert Heuer[1], Thomas Führer[1]

[1] Pontificia Universidad Catolica de Chile, Santiago, Chile

We will report on recent advances of the DPG method for plate bending problems. Special focus is on the Reissner-Mindlin model and its limit case, the Kirchhoff-Love model. Considering ultraweak variational formulations, the analysis boils down to considering corresponding trace operators. Since plate bending models are of fourth order (summing up the orders of the system), several trace components appear which are, unfortunately, not robustly independent. The lack of independence stems from a lack of regularity of field variables (in the Kirchhoff-Love case) or the fact the we are dealing with a singularly perturbed problem (in the Reissner-Mindlin case).

We will discuss these problems in some detail and illustrate our findings with numerical experiments.

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