

On some equivalent theorems: Poincaré, Korn, De Rham, Nečas, Lions and Bogovskii

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Abstract

We prove here the equivalence between many important properties concerning: the divergence operator, the Lions lemma, the Necas inequality, the Korn inequality and the weak lemma of Poincaré. Using then the Bogovskii operator and the Calderon-Zygmund theory, we give some isomorphism concerning the divergence operator. We give also a complete proof of the original De Rham theorem and we obtain some extension to the irrotational fields (see [1], [2]).

Keywords: divergence operator, Lions lemma, Necas inequality, Korn inequality, Bogovskii operator

References

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