Geometry,
Integrability
and
Quantization

EXTREMALS OF THE GENERALIZED EULER-BERNOULLI ENERGY AND APPLICATIONS*

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Abstract. In this survey we describe a general method to deal with the variational problem associated to the generalized elastic curves, paying special attention to closed critical curves in real space forms due to its special geometric significance. We illustrate the method by studying particular choices of this energy in some more detail. Finally, we will review also some interesting applications of generalized elasticae to other higher dimensional variational problems in Physics, Biophysics and the Theory of Submanifolds.

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