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Biharmonic morphisms

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Abstract: Let (X, \mathcal{H}) and (X', \mathcal{H}') be two strong biharmonic spaces in the sense of Smyrnelis whose associated harmonic spaces are Brelot spaces. A biharmonic morphism from (X, \mathcal{H}) to (X', \mathcal{H}') is a continuous map from X to X' which preserves the biharmonic structures of X and X' . In the present work we study this notion and characterize in some cases the biharmonic morphisms between X and X' in terms of harmonic morphisms between the harmonic spaces associated with (X, \mathcal{H}) and (X', \mathcal{H}') and the coupling kernels of them.

Keywords: harmonic space, harmonic morphism, biharmonic space, biharmonic function, biharmonic morphism

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