**A. Mohammed Cherif, Djaa Mustapha**

*On generalized $f$-harmonic morphisms*

Comment.Math.Univ.Carolin. 55,1 (2014) 17 –27.

**Abstract:** In this paper, we study the characterization of generalized $f$-harmonic morphisms between Riemannian manifolds. We prove that a map between Riemannian manifolds is an $f$-harmonic morphism if and only if it is a horizontally weakly conformal map satisfying some further conditions. We present new properties generalizing Fuglede-Ishihara characterization for harmonic morphisms ([Fuglede B., *Harmonic morphisms between Riemannian manifolds*, Ann. Inst. Fourier (Grenoble) **28** (1978), 107–144], [Ishihara T., *A mapping of Riemannian manifolds which preserves harmonic functions*, J. Math. Kyoto Univ. **19** (1979), no. 2, 215–229]).

**Keywords:** $f$-harmonic morphisms; $f$-harmonic maps
**AMS Subject Classification:** 53C43, 58E20

## References

[1] Ara M., *Geometry of $F$-harmonic maps*, Kodai Math. J. **22** (1999), no. 2, 243–263.
[2] Baird P., Wood J.C., *Harmonic Morphisms between Riemannain Manifolds*, Clarendon Press, Oxford, 2003.
[3] Course N., *f-harmonic maps which map the boundary of the domain to one point in the target*, New York J. Math. **13** (2007), 423–435 (electronic).
[4] Djaa M., Cherif A.M., Zegga K., Ouakkas S., *On the generalized of harmonic and bi-harmonic maps*, Int. Electron. J. Geom. **5** (2012), no. 1, 90–100.
[5] Mustapha D., Cherif A.M., *On the generalized $f$-biharmonic maps and stress $f$-bienergy tensor*, Journal of Geometry and Symmetry in Physics, JGSP 29 (2013), 65–81.
[6] Fuglede B., *Harmonic morphisms between Riemannian manifolds*, Ann. Inst. Fourier (Grenoble) **28** (1978), 107–144.
[7] Gudmundsson S., *The geometry of harmonic morphisms*, University of Leeds, Department of Pure Mathematics, April 1992.
[8] Ishihara T., *A mapping of Riemannian manifolds which preserves harmonic functions*, J. Math. Kyoto Univ. **19** (1979), no. 2, 215–229.
[9] Lichnerowicz A., *Applications harmoniques et variétés Kähleriennes*, 1968/1969 Symposia Mathematica, Vol. III (INDAM, Rome, 1968/69), pp. 341–402, Academic Press, London.
[10] Ou Y.L., *On $f$-harmonic morphisms between Riemannian manifolds*, arxiv:1103.5687, Chinese Ann. Math., series B, to appear.
[11] Ouakkas S., Nasri R., Djaa M., *On the f-harmonic and f-biharmonic maps*, JP J. Geom. Topol. **10** (2010), no. 1, 11–27.