EXTRACTA MATHEMATICAE Vol. **23**, Núm. 1, 61 – 70 (2008)

Lifting Infinitesimal Automorphisms to Higher Order Adapted Frame Bundles

J. Kurek, W.M. Mikulski

Institute of Mathematics, Maria Curie-Sklodowska University, Pl. M. Curie-Sklodowskiej 1*, Lublin, Poland, kurek@hektor.umcs.lublin.pl*

Institute of Mathematics, Jagiellonian University, ul. Reymonta 4*, Kraków, Poland, mikulski@im.uj.edu.pl*

Presented by Manuel de León Received July 17, 2007

Abstract: We describe all $\mathcal{F}ol_{m,n}$-natural operators $\mathcal{A}$ lifting infinitesimal automorphisms X on foliated $(m+n)$-dimensional manifolds $(M,\mathcal{F})$ with n-dimensional foliations $\mathcal{F}$ into vector fields $\mathcal{A}(X)$ on the r-th order adapted frame bundle $P^r(M,\mathcal{F})$. Next, we describe all $\mathcal{F}ol_{m,n}$-natural affinors on $P^r(M,\mathcal{F})$.

Key words: foliated manifold, infinitesimal automorphism, natural operator, natural affinor, higher order adapted frame bundle.

AMS *Subject Class.* (2000): 58A20, 58A32.

References

[1] I. Kolář, P.W. Michor, J. Slovák, "Natural Operations in Differential Geometry", Springer Verlag, Berlin, 1993.

[2] I. Kolář, M. Modugno, Torsions of connectionons on some natural bundles, *Differential Geom. Appl.* **2** (1) (1992), 1 – 16.

[3] J. Kurek, W.M. Mikulski, The natural affinors on the r-th order frame bundle, *Demonstratio Math.* {bt 41 (3) (2008), 701 – 704.

[4] J. Kurek, W.M. Mikulski, Lifting vector fields to the r-th order frame bundle, *Colloq. Math.* **111** (1) (2008), 51 – 58.

[5] R. Wolak, "Geometric Structures on Foliated Manifolds", Publ. del Departamento de Geometria y Topologia, Universidad de Santiago de Compostela, 76, Santiago de Compostela, 1989.