



## Erratum

Giuseppe Gaeta: Reduction of Poincaré Normal Forms, *Lett. Math. Phys.* **42** (2000), 103–114

The computation given in Section 5 of [1] is incorrect for the case  $v \leq \mu$  (these are defined in Lemma there); this same mistake is also repeated in sect. VIII.6 of [2].

With  $\tilde{a}_k, \tilde{b}_k$  real constants, in general different from  $a_k, b_k$ , Equation (5.5) should be replaced by

$$f^*(x) = Ax + a_\mu X_\mu + \tilde{a}_{2\mu} X_{2\mu} + \sum_{k=v}^{\mu} \tilde{b}_k Y_k . \quad (1)$$

Note also that in [1] it is not stressed that the computation is performed by making use of the Lie algebraic properties of the set of vector fields in normal form, see (5.2).

Following step by step, the general and generic algorithm described in Section 4 one would obtain a different reduced normal form, i.e.

$$f^*(x) = Ax + b_v Y_v + \sum_{k=\mu}^{\infty} \tilde{a}_k X_k .$$

I also stress that in [3] my definition of PRFs was incorrectly reported; thus the ‘counterexample’ given in [3] does not concern PRFs as defined and discussed in [1,2].

These points, and the use of Lie algebraic properties in the algorithmic reduction of Poincaré–Dulac normal forms, are discussed in detail in [4]; these are available via [http://mpej.unige.ch/mp\\_arc/mp\\_arc-home.html](http://mpej.unige.ch/mp_arc/mp_arc-home.html) .

## References

1. Gaeta, G.: Reduction of Poincaré normal forms, *Lett. Math. Phys.* **42** (1997), 103–114.
2. Cicogna, G. and Gaeta, G.: *Symmetry and Perturbation Theory in Nonlinear Dynamics*, Lecture Notes in Phys. 57, Springer, New York, 1999.
3. Bruno, A. D.: Reviews 1999a:34111 and 2000h:37071, *Math. Rev.*
4. Gaeta, G.: Poincaré renormalized forms and regular singular points of vector fields in the plane, Preprint mp-arc 01-17 (2001); Algorithmic reduction of Poincaré normal forms and Lie algebras, Preprint mp-arc 01-78 (2001).