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Erratum

Erratum to "Projections of Jordan bi-Poisson structures that are Kronecker, diagonal actions, and the classical Gaudin systems" [J. Geom. Phys. 47 (2003) 379–397][☆]

Andriy Panasyuk [a,b,*]

[a] *Division of Mathematical Methods in Physics, University of Warsaw, Hoża St. 69, 00-682 Warsaw, Poland*
[b] *Pidstrygach Institute of Applied Problems of Mathematics and Mechanics, Naukova Str. 3b, 79601 Lviv, Ukraine*

1. In Corollary 2.20:
   Erratum: *Then for any* $x \in M/G$ *we have* $\operatorname{corank} \eta'_{x'} = \operatorname{rank} G$, *where* η' *is the projection of* η *via the canonical map* $M \to M/G$.
   Corrigendum: *Then for any* $x' \in M/G \setminus p(\mu^{-1}(\operatorname{Sing} \mathfrak{g}^*))$, *where* $p : M \to M/G$ *is the canonical projection,* μ *is the moment map and* $\operatorname{Sing} \mathfrak{g}^*$ *stands for the union of the coadjoint orbits in* $\mathfrak{g}^*$ *of nonmaximal dimension, we have* $\operatorname{corank} \eta'_{x'} = \operatorname{rank} G$ (η' *is the projection of* η *via* p).
2. In Proposition 2.21, item (c):
   Erratum: η *is projectable via the canonical map* $M \to M/G$ *and* $\operatorname{corank} \eta'_{x'} = \operatorname{rank} G_S$ *for any* $x' \in M/G$, *where* η' *is the projection.*
   Corrigendum: η *is projectable via the canonical map* $p : M \to M/G$ *and* $\operatorname{corank} \eta'_{x'} = \operatorname{rank} G_S$ *for any* $x' \in M/G \setminus p(\mu_S^{-1}(\operatorname{Sing} \mathfrak{g}_S^*))$, *where* η' *is the projection and* $\mu_S : S \to \mathfrak{g}_S^*$ *is the moment map corresponding to the action of* G_S *on* $(S, \eta|_S)$ (*the set* $p(\mu_S^{-1}(\operatorname{Sing} \mathfrak{g}_S^*))$ *is independent of the choice of* S).
3. Theorem 4.2 after assumption (4) should read:
   (5) *writing* $\mu_t : \tilde{M} \to \tilde{\mathfrak{g}}^*, t \in \mathbb{C}^2 \setminus E, \mu_j : S_j \to \tilde{\mathfrak{g}}_j^*$, *for the corresponding moment maps assume that* $\Phi \cup \Phi_1 \cup \cdots \cup \Phi_N \neq \tilde{M}$, *where we put* $\Phi := \bigcup_{t \in \mathbb{C}^2 \setminus E} \mu_t^{-1}$ $(\operatorname{Sing} \tilde{\mathfrak{g}}^*)$, $\Phi_j := \tilde{G}(\mu_j^{-1}(\operatorname{Sing} \tilde{\mathfrak{g}}_j^*))$.

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* Present address: Division of Mathematical Methods in Physics, University of Warsaw, Hoża St. 69, 00-682 Warsaw, Poland.
E-mail address: panas@fuw.edu.pl (A. Panasyuk).

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Then $\{\eta^t\}$ *is projectable via the canonical map* $p : M \to M/G$ *and the projection* $\{(\eta^t)'\}$ *is a bi-Poisson structure Kronecker at any point* $x' \in p(R^{\tilde{\eta}^{e_1}} \cap \cdots \cap R^{\tilde{\eta}^{e_N}} \setminus (\Phi \cup \Phi_1 \cup \cdots \cup \Phi_N))$ *iff*

$$\operatorname{rank} \tilde{G} = \operatorname{rank} \tilde{G}_1 = \cdots = \operatorname{rank} \tilde{G}_N$$

(*here* R^η *stands for the regularity set of a bivector* η, *see* Definition 2.2).

4. In Definition 5.2 "admissible" should read "$(a_1, \ldots, a_N)$-admissible" and one more assumption should be added:
   (3) $\mathcal{O} \not\subset \Phi \cup \Phi_1 \cup \cdots \cup \Phi_N$, where $\Phi := \bigcup_{t \in \mathbb{C}^2 \setminus E} \mu_t^{-1}(\operatorname{Sing} \mathfrak{g}^*)$, $\Phi_j = G(\mu_j^{-1}(\operatorname{Sing} \mathfrak{g}_j^*))$, $j = 1, \ldots, N$, and the maps $\mu_t : (\mathfrak{g}^*)^{\times N} \to \mathfrak{g}^*$ and $\mu_j : (\mathfrak{g}^*)^{\times N} \to \mathfrak{g}_j^*$ are defined by

$$\mu_t : (x_1, \ldots, x_N) \mapsto \frac{1}{t_1 + a_1 t_2} x_1 + \cdots + \frac{1}{t_1 + a_N t_2} x_N,$$

$$\mu_j : (x_1, \ldots, x_N) \mapsto \frac{1}{a_j - a_1} \pi(x_1) + \cdots + \frac{1}{a_j - a_{j-1}} \pi(x_{j-1}) + \frac{1}{a_j - a_{j+1}} \pi(x_{j+1}) + \cdots + \frac{1}{a_j - a_N} \pi(x_N)$$

   (here π is the canonical map $\mathfrak{g}^* \to \mathfrak{g}_j^* = \mathfrak{g}^*/\mathfrak{g}_j^{\perp}$).

5. Theorem 5.3 should read: *Let* $\mathcal{O} \subset (\mathfrak{g}^*)^{\times N}$ *be an* $(a_1, \ldots, a_N)$*-admissible* $G^{\times N}$*-orbit and let* $M \subset \mathcal{O}$ *be an open set such that* M/G *is a manifold. Then the bi-Poisson structure* $\{\eta^t\}|_M$ *is projectable via the canonical map* $p : M \to M/G$ *and the projection* $\{(\eta^t)'\}$ *is a micro-Kronecker bi-Poisson structure* (*see* Definition 3.5) *on* $M' = M/G$. *More precisely*, $\{(\eta^t)'\}$ *is Kronecker at any* $x' \in M' \setminus p(\mathcal{R} \cup \Phi \cup \Phi_1 \cup \cdots \cup \Phi_N)$, *where* $\mathcal{R} \subset (\mathfrak{g}^*)^{\times N}$ *is the algebraic set of all elements with a nondiscrete G-stabilizer*.
6. In the proof of Theorem 5.3 the following argument should be added: 4.2(5) follows from 5.2(3).
7. Theorem 5.7 should read: *Assume G is semisimple. Then a generic* $G^{\times N}$*-orbit* $\mathcal{O} = Gx_1 \times \cdots \times Gx_N \subset (\mathfrak{g}^*)^{\times N}$ *is* $(a_1, \ldots, a_N)$*-admissible for any* $N \geq 2$ *and any* (*different*) $a_1, \ldots, a_N$.
8. In the proof of Theorem 5.7 the following argument should be added: Condition (3) of Definition 5.2 follows from the facts that $\operatorname{codim} \operatorname{Sing} \mathfrak{g}^* \geq 3$ for semisimple $\mathfrak{g}$ (consequently $\operatorname{codim} \Phi \geq 1$) and that $\operatorname{Sing} \mathfrak{g}_j^* = \emptyset$, $j = 1, \ldots, N$.

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