

## Corrigendum for the paper: “A Characterization of Symplectic Grassmannians”

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We refer to our paper [1], using the same notation.

We thank Jun-Muk Hwang for pointing out that the homomorphism of algebraic groups  $\eta : \mathrm{GL}(\mathcal{F}_{2,x}^\vee)_{\mathcal{Q}^\vee} \rightarrow \mathrm{GL}(T_{X,x})$  has a nontrivial kernel (isomorphic to  $\mathbb{Z}_2$ ), preventing us from defining, in Section 3.3, the vector bundles  $\mathcal{Q}^\vee, \mathcal{F}_1^\vee, \mathcal{F}_2^\vee$ . However, the main Theorem of the paper may still be proved by slightly modifying our arguments as follows.

**1.** In Section 3.3, instead of defining the vector bundles  $\mathcal{Q}^\vee, \mathcal{F}_1^\vee, \mathcal{F}_2^\vee$  over  $X$ , we may only define the corresponding projective bundles  $\mathcal{Z}, \mathcal{U}_1$  and  $\mathcal{U}_2$  over  $X$ , and vector bundles  $\mathcal{G}, \mathrm{H}\mathcal{G}$  over  $\mathcal{U}_1$ , whose projectivizations give  $\mathcal{U}$  and  $\mathrm{H}\mathcal{U}$ , fitting in a sequence:

$$0 \rightarrow \mathcal{K} \rightarrow \mathcal{G} \rightarrow \mathrm{H}\mathcal{G} \rightarrow 0,$$

with  $\mathcal{K}$  a line bundle.

On the other hand, the desired vector bundles  $\mathcal{Q}^\vee, \mathcal{F}_1^\vee, \mathcal{F}_2^\vee$  may still be constructed over a rational curve  $\ell$  of the family  $\mathcal{M}$ . By choosing an appropriate twist, they fit in the commutative diagram

$$\begin{array}{ccccc}
 \wedge^2 \mathcal{F}_1 & \xlongequal{\quad} & \wedge^2 \mathcal{F}_1 & & \\
 \downarrow & & \downarrow & & \\
 \otimes^2 \mathcal{F}_1 & \longrightarrow & \mathcal{F}_1 \otimes \mathcal{F}_2 & \longrightarrow & \mathcal{F}_1 \otimes \mathcal{Q} \\
 \downarrow & & \downarrow & & \parallel \\
 S^2 \mathcal{F}_1 & \longrightarrow & \Omega_{X|\ell} \otimes \mathcal{O}_\ell(d) & \longrightarrow & \mathcal{F}_1 \otimes \mathcal{Q}
 \end{array}$$

for  $d = 0$  or  $1$ .

**2.** The computations in Section 4 can then be carried out in the same way, and they provide  $\mathcal{O}(\mathrm{H}\mathcal{U}) \cdot \ell = d = 0$ .

**3.** To prove Corollary 5.2 we had used a result of Fujita, which no longer applies, since we do not have a divisor of degree one on the fibers of  $\rho$ ; however the conclusion of the Corollary is still true, since  $\rho$  is equidimensional, by applying [2, Theorem 1.3].

4. The main goal of Section 5 was to prove the existence of an everywhere nondegenerate skew-symmetric form on the vector bundle  $\mathcal{Q}$ , whose existence is now not clear. However, the arguments of the section provide, verbatim, the existence of an everywhere nondegenerate skew-symmetric form on the bundle  $\mathcal{H}\mathcal{G}$ .

5. In section 6, we may now consider the  $A_{r-1}$ -bundle  $\bar{\mathcal{U}}_1 \rightarrow X$  associated to  $\mathcal{U}_1 \rightarrow X$  and the fiber product

$$\begin{array}{ccc} \bar{\mathcal{U}}_1 \times_{\mathcal{U}_1} \mathcal{H}\mathcal{U} & \longrightarrow & \mathcal{H}\mathcal{U} \\ \downarrow & & \downarrow \\ \bar{\mathcal{U}}_1 & \longrightarrow & \mathcal{U}_1 \end{array}$$

Since  $\mathcal{H}\mathcal{U} \rightarrow \mathcal{U}_1$  is given by a cocycle with values in  $\mathrm{Sp}(\mathcal{Q}_x^\vee)$ , by the results of Section 5, the same holds for  $\bar{\mathcal{U}}_1 \times_{\mathcal{U}_1} \mathcal{H}\mathcal{U} \rightarrow \bar{\mathcal{U}}_1$ , and we may construct its associated  $C_{n-r}$ -bundle,  $\overline{\mathcal{H}\mathcal{U}} \rightarrow \bar{\mathcal{U}}_1$ . Then the composition

$$\bar{q} : \overline{\mathcal{H}\mathcal{U}} \longrightarrow \bar{\mathcal{U}}_1 \longrightarrow X$$

is an  $(A_{r-1} \sqcup C_{n-r})$ -bundle over  $X$ . From this point on, the proof goes on verbatim.

### References

- [1] Gianluca Occhetta, Luis E. Solá Conde, and Kiwamu Watanabe, *A Characterization of Symplectic Grassmannians*. *Math. Z.*, (2016). Doi:10.1007/s00209-016-1807-6
- [2] Andreas Horing and Carla Novelli, *Mori contractions of maximal length*. *Publ. Res. Inst. Math. Sci.*, 49(1):215–228, 2013.

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