

Tyurin, N. A.

On the Kählerization of the moduli space of Bohr-Sommerfeld Lagrangian submanifolds.
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Fix a compact simply connected symplectic manifold (M^{2n}, ω) with integer symplectic form $[\omega] \in H^2(M, \mathbb{Z}) \subset H^2(M, \mathbb{R})$. Consider also the prequantization data (L, a) with a complex line bundle $L \rightarrow M$ with fixed Hermitian structure h and a Hermitian connection $a \in \mathcal{A}_h(L)$ with curvature $2\pi i\omega$. Previously, the present author considered the moduli space \mathcal{B}_S of Bohr-Sommerfeld Lagrangian submanifolds of fixed topological type. In the paper under review, the notion of a special Bohr-Sommerfeld Lagrangian submanifold $S \subset M$ is introduced and it results the subspace $\mathcal{U}_{SBS} \subset \mathbb{P}\Gamma(M, L) \times \mathcal{B}_S$ on which there exists a weak Kähler form $p^*\Omega_{FS}$ where p is the projection onto the first factor above and Ω_{FS} the standard Fubini-Study Kähler form. The main result of this note is that a suitable subset of \mathcal{U}_{SBS} is Kähler with respect to $p^*\Omega_{FS}$.

Reviewer: [Mircea Crâșmăreanu \(Iași\)](#)

MSC:

[53D05](#) Symplectic manifolds, general

[53D50](#) Geometric quantization

Keywords:

[Bohr-Sommerfeld Lagrangian submanifold](#); [Kähler structure](#)

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References:

- [1] Gorodentsev, A. L.; Tyurin, A. N., *Izv. Ross. Akad. Nauk Ser. Mat.*, 65, 3, 15 (2001)
- [2] A. Tyurin, *Complexification of Bohr-Sommerfeld Condition*, arXiv: math/9909094 (1999).
- [3] Tyurin, N. A., *Izv. Ross. Akad. Nauk Ser. Mat.*, 80, 6, 274 (2016)

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