Condition of Prequantization to Two-Dimensional Manifolds with Boundary

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Abstract: The Weil's integrality condition of prequantization is generalized to two-dimensional phase space with boundaries. It is shown that in the prequantization condition a term related to the symplectic potential on the boundary appears. The necessity of the generalized condition is proved by analyzing the isolated singularities of the Hermitian bundle while the sufficiency of the condition is proved via geometric construction on the space of equivalence class.

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