DEFORMATIONS OF SYMPLECTIC STRUCTURES BY MOMENT MAPS

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Abstract. We study deformations of symplectic structures on a smooth manifold M via the quasi-Poisson theory. We can deform a given symplectic structure ω with a Hamiltonian G-action to a new symplectic structure ω^t parametrized by some element t in $\Lambda^2\mathfrak{g}$. We can obtain concrete examples for the deformations of symplectic structures on the complex projective space and the complex Grassmannian. Moreover applying the deformation method to any symplectic toric manifold, we show that manifolds before and after deformations are isomorphic as a symplectic toric manifold.

MSC: 53D05, 53D17, 53D20
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Contents

1. Introduction

In the context of symplectic geometry, deformation-equivalence assumptions and conditions are often appeared, for example, in the statement of Moser's theorem [9], Donaldson's four-six conjecture [10] and so on. However, it seems that a