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**Sergeev, Armen [Sergeev, Armen Glebovich] (RS-AOS)**

★ **Lectures on universal Teichmüller space.**

EMS Series of Lectures in Mathematics.

*European Mathematical Society (EMS), Zürich, 2014. viii+104 pp.*  
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The concept of the universal Teichmüller space was introduced by Lipman Bers in the early 1960s as an infinite-dimensional complex manifold containing all classical Teichmüller spaces. Later on it found applications in the quantization of the theory of smooth strings. The book under review is devoted to these two threads and it consists of fourteen beautiful lectures written with extreme care. Only principal knowledge of differential geometry and complex and functional analysis are required to follow these lectures, which makes the book accessible and useful to both undergraduate students and professional mathematicians whose expertise is somewhat distant from this area.

The book is divided into two parts. In the first the author uses the classical definition of the universal Teichmüller space as the quotient of the space of quasi-symmetric homeomorphisms of the unit circle modulo Möbius transformations, with the final objective being identification of classical Teichmüller spaces as its subspaces. The second starts with Grassmann realization of the universal Teichmüller space based on Nag and Sullivan's theorem, and through quantization of the classical systems of Dirac and Connes, arrives at quantization of universal Teichmüller space.

The lectures are divided into the following sections: 1. Quasiconformal maps; 2. Universal Teichmüller space; 3. Subspaces of universal Teichmüller space; 4. Grassmann realization of the universal Teichmüller space; 5. Quantization of space of diffeomorphisms; 6. Quantization of Teichmüller space; 7. Instead of an afterword. Universal Teichmüller space and string theory; 8. Problems; 9. Bibliographical comment.

*Grzegorz Gromadzki*

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