Record Nr. UNINA9910813200603321 Autore Fomin Sergey Titolo Cluster algebras and triangulated surfaces . Part II Lambda lenghts / / Sergey Fomin, Dylan Thurston Pubbl/distr/stampa Providence, Rhode Island: .: American Mathematical Society, . [2018] ©2018 **ISBN** 1-4704-4823-8 Descrizione fisica 1 online resource (110 pages) Collana Memoirs of the American Mathematical Society: Volume 255, number 1223 512.44 Disciplina Cluster algebras Soggetti Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references. Cover -- Title page -- Chapter 1. Introduction -- Chapter 2. Non-Nota di contenuto normalized cluster algebras -- Chapter 3. Rescaling and normalization -- Chapter 4. Cluster algebras of geometric type and their positive realizations -- Chapter 5. Bordered surfaces, arc complexes, and tagged arcs -- Chapter 6. Structural results -- Chapter 7. Lambda lengths on bordered surfaces with punctures -- Chapter 8. Lambda lengths of tagged arcs -- Chapter 9. Opened surfaces -- Chapter 10. Lambda lengths on opened surfaces -- Chapter 11. Non-normalized exchange patterns from surfaces -- Chapter 12. Laminations and shear coordinates -- Chapter 13. Shear coordinates with respect to tagged triangulations -- Chapter 14. Tropical lambda lengths -- Chapter 15. Laminated Teichmuller spaces -- Chapter 16. Topological realizations of some coordinate rings -- Chapter 17. Principal and universal coefficients -- Appendix A. Tropical degeneration and relative lambda lengths -- Appendix B. Versions of Teichmuller spaces and coordinates -- Bibliography -- Back Cover. Sommario/riassunto For any cluster algebra whose underlying combinatorial data can be encoded by a bordered surface with marked points, the authors construct a geometric realization in terms of suitable decorated Teichmuller space of the surface. On the geometric side, this requires

opening the surface at each interior marked point into an additional geodesic boundary component. On the algebraic side, it relies on the

notion of a non-normalized cluster algebra and the machinery of tropical lambda lengths. The authors' model allows for an arbitrary choice of coefficients which translates into a choice of a family of integral laminations on the surface. It provides an intrinsic interpretation of cluster variables as renormalized lambda lengths of arcs on the surface. Exchange relations are written in terms of the shear coordinates of the laminations and are interpreted as generalized Ptolemy relations for lambda lengths. This approach gives alternative proofs for the main structural results from the authors' previous paper, removing unnecessary assumptions on the surface.