1145-05-996 **Kenta Ozeki*** (ozeki-kenta-xr@ynu.ac.jp), 79-2 Tokiwadai, Hodogaya-ku, Yokohama, 240-8501, Japan. *Spanning trees with few leaves in graphs on surfaces.*

This work is a joint work with Atsuhiro Nakamoto (Yokohama National University).

In a graph G, a cycle or a path is **Hamiltonian** if it contains all vertices of G. In 1956, Tutte proved that every 4-connected planar graph is Hamiltonian. Since planar graphs can be regarded as graphs on the sphere, it is natural to think about graphs on higher genus surfaces. With this direction, the most attractive conjecture is due to Nash-Willams and Grüunbaum, which says that every 4-connected graph on the torus is Hamiltonian. This conjecture is still open. Note that for any such a surface F^2 with genus more than the torus, there exist infinitely many 4-connected non-Hamiltonian graphs on F^2. However, we can expect the existence of some structures which have weaker (but still interesting) property than the Hamiltonicity. For example, it is unknown that whether every 4-connected graph on the nonorientable surface of crosscap number 3 has a Hamiltonian path. Similarly, the speaker conjectured that for any surface of Euler characteristic χ, there exists a spanning tree with at most $O(-\chi)$ leaves. In this talk, we will give a recent result concerning the conjecture. (Received September 18, 2018)