1154-05-918 **Yuki Irie*** (yirie@tohoku.ac.jp), 6-3 Aoba, Aramaki, Aoba-ku, Sendai, Miyagi , Japan.
Representations of Symmetric Groups and Welter's Game.

In the 1970s, Mikio Sato conjectured that Welter's game, a game played with a Young diagram, is related to representations of symmetric groups. In support of this conjecture, he pointed out that its Sprague-Grundy function, which gives the winning way of the game, can be expressed in a form similar to the hook-length formula.

In this talk, we present a relation between representations of symmetric groups and Welter's game. Irreducible representations with degree prime to p play an important role in this context, where p is a prime. For a Young diagram Y, let R^Y denote the irreducible representation of $\mathrm{Sym}(n)$ corresponding to Y. We give a function $\psi_p(Y)$ such that the restriction of R^Y to $\mathrm{Sym}(\psi_p(Y))$ has an irreducible component with degree prime to p. From this, we prove that $\psi_p(Y)$ is equal to the Sprague-Grundy function for a p-saturated Welter's game, where Welter's game is a 2-saturated Welter's game. (Received September 11, 2019)