SMITH PROBLEM AND LAITINEN'S CONJECTURE

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Professor Krzysztof Pawałowski is studying the Smith problem. Corresponding to the Smith problem, Laitinen conjectured that if a finite Oliver group G has the property that the number of real conjugacy classes of elements not of prime power order is greater than or equal to 2, there exist nontrivial Laitinen–Smith equivalent G-modules. Here, two G-modules are called Laitinen–Smith equivalent if they are tangential representations of a sphere with a smooth G-action having exactly two fixed points under mild connectivity condition. First, Morimoto pointed out that $\mathrm{Aut}(A_6)$ is a counterexample for the Laitinen's conjecture. After that, Pawałowski and I concluded that it is a unique counterexample among unsolvable groups. Although there exist a few counterexamples among solvable Oliver groups, many groups satisfy the Laitinen's conjecture. I will talk about a sufficient condition for a group that the Laitinen's conjecture is true. This is a joint work with professor Krzysztof Pawałowski.