1173-57-57   **Sumeyra Sakalli*** (`ssakalli@uark.edu`), **Anar Akhmedov** and **Sai-Kee Yeung**. *Complex Ball Quotients and New Symplectic 4-Manifolds with Nonnegative Signatures.*

We discuss Cartwright-Steger surfaces, which are complex surfaces on the BMY line. By taking their covers and using exotic symplectic 4-manifolds, we construct new symplectic 4-manifolds with non-negative signatures. In particular, we prove that there exist an irreducible symplectic and infinitely many non-symplectic 4-manifolds that are homeomorphic but not diffeomorphic to $(2n-1)\mathbb{CP}^2\#(2n-1)(-\mathbb{CP}^2)$ for each integer $n >= 9$, and also families of simply connected irreducible nonspin symplectic 4-manifolds that have the smallest Euler characteristics among the all known simply connected 4-manifolds with positive signatures and with more than one smooth structure. This is a joint work with A. Akhmedov and S.-K. Yeung. (Received September 13, 2021)

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