Research Plan --- Yasuo Matsushita

For 2022 Academic Year

December 20, 2021

My basic and main research is again concerning the geometry on the indefinite metric spaces.

New Issue for the New Academic Year:

It is known that connected sums of arbitrary odd numbers of complex projective surfaces and also arbitrary odd numbers of opposite complex projective surfaces admit a neutral metric of signature $(+\ \ +\ \ -\ \ -)$ (YM 1991). We try to construct such neutral metrics *explicitly* on such 4-manifolds of the connected sums.

My Basic Research Plan at present:

The counterexamples of the Goldberg Conjecture for pseudo-Rimannian manifolds in dimensions 6 and 8 have been reported from 2007 until 2017. For manifolds of the lowest dimensional case, dimension 4, the situations concerning the Goldberg Conjecture it are is quite different from the manifolds of higher dimensional cases. Therefore, our research target will be focused on the 4-dimensional manifolds, if the Goldberg Conjecture is true or not.

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