Duality of boundary value problems for minimal and maximal surfaces

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In 1966, Jenkins and Serrin gave existence and uniqueness results for infinite boundary value problems of minimal surfaces in the Euclidean space, and after that such solutions have been studied by using the univalent harmonic mapping theory.

In this talk, we show that there exists a one-to-one correspondence between solutions of infinite boundary value problems for minimal surfaces and those of lightlike line boundary problems for maximal surfaces in the Lorentz-Minkowski space. We also investigate some symmetry relations associated with the above correspondence together with their conjugations.

This talk is based on the preprint arXiv:1909.00975, which is the joint work with Hiroki Fujino (Nagoya University).