

On multisheeted algebraic domains

Abstract If the boundary of a domain in the complex is an algebraic curve, then it is possible to associate two, in general different, compact Riemann surfaces to the domain. One is the Schottky double of the domain, the other is the Riemann surface classically associated to the algebraic curve constituting the boundary. These two Riemann surfaces can be canonically identified with each other if, and only if, the domain is a classical quadrature domain (in the sense of H. S. Shapiro, M. Sakai and others) or, in a different terminology (due to A. N. Varchenko and P. I. Etingof), an algebraic domain.

In the talk I will discuss a generalization of the above concept, which was first discussed by M. Sakai (in the 1980:s) under the name quadrature Riemann surface, and more recently studied by V. Tkachev and myself under the name multisheeted algebraic domain.