Title : Gibbs measures and Double Variational Principle for a potential depending on the first coordinate on XY model.

Abstract : The minmax problem for the sum of rate distortion dimension and the integral of a potential function is called Double Variational Principle with a potential and XY-model is a typical example for which the principle holds. On the other hand, we can construct a Gibbs measure for a continuous function on XY-model by using the Ruelle operator. Hence it is natural to ask the minmax value is attained by the Gibbs measure as an analogy of the Variational Principle for a shift with finite alphabets. In this talk, we consider a potential depending only on the first coordinate on XY model and calculate the rate distortion dimension for the Gibbs measure of the potential. This is a joint work with Mao Shinoda in Ochanomizu University.