

## عنوان مقاله:

Mechanisms of Water Droplets Deposition on Turbine Blade Surfaces and Erosion Wear Effects

## محل انتشار:

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## خلاصه مقاله:

Failure of turbine blades leads to various exploitation problems, efficiency decrease and economical losses, at all. A detailed research on aerodynamic features, in various exploitation conditions and regimes, and on reasons for failures, is a prerequisite to the obviated technical problems and increased reliability of turbine aggregates. Water droplets erosion is known as a very complex and crucial phenomena. It couples the effects of wet steam expansion, together with condensation (evaporation), presence of second phase with the impact of water droplets over blade surfaces, erosion effects and fatigue mechanisms. The present research deals with a logical sequence for numerical simulations and research on erosion mechanisms in a low pressure stage of K-1۰۰۰-۶ / ۱۵۰۰ steam turbine, working at a Nuclear Power Plant. Attention is paid to the impact of droplets' diameter on blade surfaces, their aerodynamic behavior and efficiency of energy conversion through turbine channels. Particular trajectories of water droplets, reasons for occurrence of erosion wear, over certain parts of the streamlined surfaces, are established and discussed. An approach to acquire incidence time to erosion appearance is implemented. Research methodology and obtained results are applicable to determine erosion effects on streamed complex surfaces, to replace expensive measurements campaigns, introduce approaches to decrease wetness in last stages of condensation turbines and prolong the reliability of blades operated in wet steam conditions

## کلمات کلیدی:

Droplet diameter, Erosion impact, Turbine blade, Water droplet erosion, Water droplets trajectories, Water hammer pressure

## لینک ثابت مقاله در پایگاه سیویلیکا:

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