

# Experiments in Fluid Mechanics 2015

Warsaw, 26-27.10.2015

Institute of Aeronautics and Applied Mechanics

Nowowiejska 24, 00-665 Warsaw, Poland

---

RETURN THIS DOCUMENT TO [jack@meil.pw.edu.pl](mailto:jack@meil.pw.edu.pl) by 1.10.2015

The email subject: EFM 2015 + *your name*.

Rename the file to: EFM2015 + *your name*

Please, kindly use Arial 11 and do not exceed 1 page in total.

<b>Title of presentation:</b> Laminar and Turbulent Shock Wave Boundary Layer Interaction on the Compressor Blade
<b>Authors:</b> Piotr Kaczyński, Ryszard Szwaba, Piotr Doerffer
<b>Organisation(s):</b> Institute of Fluid-Flow Machinery (IMP PAN)
<b>Email(s):</b> <a href="mailto:pkaczynski@imp.gda.pl">pkaczynski@imp.gda.pl</a> , <a href="mailto:rssz@imp.gda.pl">rssz@imp.gda.pl</a> , <a href="mailto:doerffer@imp.gda.pl">doerffer@imp.gda.pl</a>
<b>Abstract:</b> The shock wave boundary layer interaction on the suction side of a transonic compressor blade is one of the main objectives of the TFAST project (Transition Location Effect on Shock Wave Boundary Layer Interaction). In order to investigate the flow structure on the suction side of the blade in a rectilinear test section of the transonic wind tunnel, a model of a turbine compressor passage was designed, manufactured and assembled in the wind tunnel. The model can reproduce the flow structure, pressure distribution and the boundary layer development similar to the obtained in a reference cascade profile. The presentation presents experimental investigation concerning the influence of laminar and turbulent shock wave boundary layer interaction on flow structure in compressor passage. The following measurement techniques were used in the experiments: schlieren and oil visualizations, static pressure measurement along the blade, PSP and TSP (Pressure and Temperature Sensitive Paints), Flow Velocity distribution by means of LDA (Laser Doppler Anemometry)

**Abstract:**