

**KOLLOQUIUM ÜBER NEUERE ARBEITEN AUF DEM GEBIETE  
DER MECHANIK UND STRÖMUNGSLEHRE  
an der Technischen Universität Wien**

## EINLADUNG

zum Vortrag von Herrn

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über

## Tackling Turbulent Jet Impingement Heat Transfer

**Zeit:** Dienstag, 11. September 2012, 11 Uhr c.t.

**Ort:** SEM 322  
Institut f. Strömungsmechanik und Wärmeübertragung  
Resselg. 3, Stiege 2, 1. Stock, 1040 Wien

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# **Tackling Turbulent Jet Impingement Heat Transfer**

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The presentation will start with an overview of different approaches available to tackle turbulent flows and heat transfer in engineering applications. In the second part of the lecture, results of computational study on turbulent jet impingement heat transfer will be presented. The high heat transfer rate of jet impinging flow has led to its wide industrial applications for cooling, heating and drying of surfaces. Unsteady Reynolds-Averaged Navier–Stokes (URANS) computations, Large Eddy Simulation (LES) and Detached Eddy Simulation (DES) of turbulent slot jet impingement have been performed at a Reynolds number of 13500 and H/d ratio of 10. Comparisons have been made in predicting the fluid flow and heat transfer characteristics with these different approaches. It has been observed that both URANS equations with the latest version of the  $k-\omega$  model and LES are capable of predicting the Nusselt number in the stagnation region, however, these are unable to accurately predict heat transfer characteristics in the region away from the stagnation point. Possible reasons for behaviours of different approaches will be discussed in the lecture.