

## German National Committee to IAPWS

### Research Activities on the Thermodynamic Properties of Water and Steam Report "Research in Progress 2013"

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#### Projects

1. Development of Fast Property Algorithms Based on Spline Interpolation
  - The algorithms for fast spline-interpolation methods was developed and applied to the calculation of thermodynamic properties of steam and water in CFD and non-stationary calculations.
  - A Draft "IAPWS Guideline on the Fast Calculation of Steam and Water Properties in Computational Fluid Dynamics Using the Spline-Based Table Look-Up Method (STM)" has been prepared.
2. Industrial Calculation of the Thermodynamic Properties for Seawater
  - The Draft "IAPWS Advisory Note No. 5: Industrial Calculation of the Thermodynamic Properties of Seawater" has been evaluated.  
The belonging paper for the Journal Desalination: "The IAPWS Industrial Formulation for the Thermodynamic Properties of Seawater" has been prepared.
3. Steam Tables for Water and Steam, VDI Wärme Atlas 2012
  - Section D2.1 "Stoffwerte für Wasser und Wasserdampf" (Properties of Water and Steam) of the VDI-Wärme Atlas 2012 (VDI-Heat Atlas), 11th German Edition has been completed. The corresponding steam tables are calculated based on the Industrial Formulation IAPWS-IF97 and the current IAPWS formulations for the transport properties and other properties.
4. Property Libraries for Calculating Heat Cycles
  - The property library LibIF97\_META for metastable steam has been prepared.
  - A steam tables App for Android smart phones and tablets has been developed.

#### Recent Publications

Wagner, W., Kretzschmar, H.-J.:

D2.1 Stoffwerte von Wasser und Wasserdampf, In: VDI-Wärmeatlas, 11. Auflage. Springer-Verlag, Berlin, 2013.

Herrmann, S.; Kretzschmar, H.-J.; Gatley, D.P.:

In: 2013 ASHRAE HANDBOOK FUNDAMENTALS, SI and I-P Editions, Chapter 1  
PSYCHROMETRICS,

Table 2 Thermodynamic Properties of Moist Air at Standard Atmospheric Pressure.

Table 3 Thermodynamic Properties of Water at Saturation.

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