



Research Activities on the Thermodynamic Properties of Water and Steam Report "Research in Progress 2005"

1. Supplementary backward equations $p(h,s)$ for regions 1 and 2 of IAPWS-IF97
 - The comprehensive article on the backward equations $p(h,s)$ will appear in the "Journal of Engineering for Gas Turbines and Power" in 2005.
2. Supplementary backward equations $T(p,h)$, $v(p,h)$, and $T(p,s)$, $v(p,s)$ for region 3 of IAPWS-IF97
 - The comprehensive article on the backward and boundary equations was prepared and submitted to the "Journal of Engineering for Gas Turbines and Power".
3. Supplementary backward and boundary equations $p(h,s)$ for region 3 of IAPWS-IF97
 - The comprehensive article on the backward and boundary equations for the "Journal of Engineering for Gas Turbines and Power" is being prepared.
4. Supplementary backward equations $v(p,T)$ for region 3 of IAPWS-IF97
 - The evaluation of the "Supplementary Release on Backward Equations for Specific Volume as a Function of Pressure and Temperature $v(p,T)$ for region 3 of the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam" was supported.
5. Thermodynamic differential quotients of the Scientific Formulation IAPWS-95 and the Industrial Formulation IAPWS-IF97 for Water and Steam
 - The Proposal for a guideline was prepared.
6. Investigations on thermodynamic properties of humid air - part of the project "Advanced Adiabatic Compressed Air Energy Storage" (AA-CAES) of the European Union
 - The property data base for humid air was completed.
 - Comparison calculations of different models for calculating thermodynamic properties of humid air were carried out.

7. Property libraries for water and steam, humid gases, and aqueous mixtures
 - The property library LibWaLi for water/lithium bromide mixtures was developed.
 - The Add-Ins
 - FluidEXL for Excel®
 - FluidMAT for Mathcad®were extended .
8. Implementation of the industrial formulation IAPWS-IF97 on pocket calculators
 - The program FluidTI for the model TI 84 of Texas Instruments was prepared.

Zittau, June 29, 2005

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