



EINLADUNG

zum

VERA - SEMINAR

von

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**Recent developments in
Proton-Transfer-Reaction Mass Spectrometry**

Proton-Transfer-Reaction Mass Spectrometry (PTR-MS) is a highly sensitive, real-time analytical technique for detecting volatile organic compounds (VOCs) in air, which was developed in the mid-1990ies in the laboratories of the Institute of Ion Physics at the University of Innsbruck. PTR-MS combines the concepts of soft, no fragmenting chemical ionisation (via proton transfer reactions with hydronium reagent ions) and of highly sensitive and quantitative product ion formation in an ion flow drift tube. Since its inception PTR-MS has become a leading technology in the on-line VOC analysis, spanning a number of research fields that include environmental science, food science, and life sciences. A series of recent technical improvements have greatly improved the instrument's capabilities. A 5 to 10-fold increase in sensitivity has been obtained with current detection limits ranging from 10 to 100 pptV (1 sec signal integration time). The PTR-MS response time has been lowered to about 150 ms, making it one of the fastest currently available VOC sensors. The implementation of sophisticated mass spectrometric equipment (time-of-flight MS, triple quadrupole MS) has led to a gain in duty cycle and in analyte specificity (MS/MS capability). Optimized modes of PTR-MS operation have been developed for the detection of gas-phase ammonia and formaldehyde. An overview of recent advances in PTR-MS will be given.

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**1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Seminarraum von VERA**