Supporting Information:

High-Sensitivity Gas-Phase Raman Spectroscopy for Time-Resolved In-Situ Analysis of Isotope Scrambling over Platinum Nanocatalysts

K. Koschnick,*,†,‡ A. M. Ferris, \P ,† B. Zhang, \S J. Lill, \ddagger ,† M. Stark, \ddagger ,†, \Vdash A. Weinmann, \Vdash H. H. Limbach, $^\perp$ T. Gutmann, \S D. Geyer, \ddagger and A. Dreizler \dagger

†Reactive Flows and Diagnostics, Department of Mechanical Engineering, Technical
University of Darmstadt, Otto-Berndt-Straße 3, 64287 Darmstadt, Germany

‡Optical Diagnostics and Renewable Energies, Department of Mechanical and Plastics
Engineering, University of Applied Sciences Darmstadt, Schöfferstraße 3, 64295

Darmstadt, Germany

 $\P Department\ of\ Mechanical\ and\ Aerospace\ Engineering,\ Princeton\ University,\ New\ Jersey$ 08544, USA

§Eduard-Zintl-Institute for Inorganic and Physical Chemistry, Technical University of Darmstadt, Alarich-Weiss-Straße 4, 64287 Darmstadt, Germany

#Algorithms for Computer Vision, Imaging and Data Analysis, University of Applied

Sciences Darmstadt, Schöfferstraße 3, 64295 Darmstadt, Germany

⊥Institute of Chemistry and Biochemistry, Freie Universität Berlin, Arminallee 22, 14195
Berlin, Germany

E-mail: koschnick@rsm.tu-darmstadt.de

Additional Figure

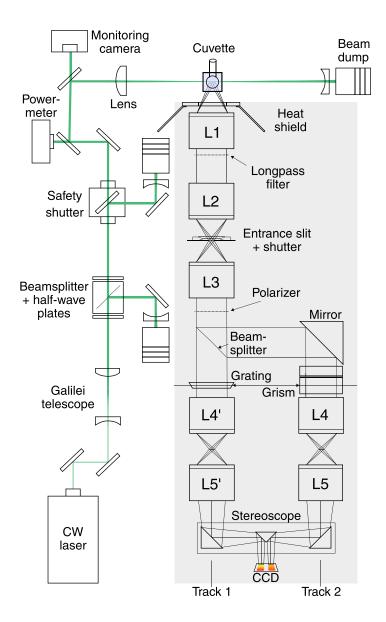


Figure S1: Detection scheme of the dual-track Raman spectrometer (gray shaded box) in combination with the excitation system and laser beam path (green) in top view. Track 2 is not used in this work.

Optical Components

Table S1: Optics used in the DTRS detection system

Component	Manufacturer	Model / Spec
L1	Pentax	67 Super-Takumar 105 mm $f/2.4$
L2	Zeiss	Planar T* 85 mm $f/1.4$ (F-Mount)
L3	Zeiss	Planar T* 85 mm $f/1.4$ (F-Mount)
$ m L4\ /\ L4'$	Zeiss	Planar T* 85 mm $f/1.4$ (F-Mount)
$\mathrm{L5}~/~\mathrm{L5'}$	Zeiss	Milvus 100 mm f/2.0 (Macro, F-Mount)
IR filter (heat shield)	Schott	KG2
Longpass filter	Semrock	BLP01-532R-50 (cut-on: 542 nm)
Beamsplitter	Edmund Optics	50/50 broadband non-polarizing
Polarizer	Moxtek	ProFlux ABGS5C
Mirrors	Edmund Optics	Dielectric broadband right-angle mirrors
Grating	Wasatch Photonics	Holographic transmission grating, 1064 l/mm
Grism	Wasatch Photonics	Holographic transmission grism, 3600 l/mm