

Supporting information of

Direct infusion resonance-enhanced multi-photon ionization mass spectrometry (DI-REMPI-MS) of liquid samples under vacuum conditions

Claudia Kruth^{†,||}, Hendryk Czech^{†,||}, Martin Sklorz^{†,‡}, Johannes Passig^{†,‡}, Sven Ehlert^{†,¶}, Achille Capiello[§], Ralf Zimmermann^{†,‡,*}

[†] Joint Mass Spectrometry Centre, Chair of Analytical Chemistry, Institute of Chemistry, University of Rostock, 18059 Rostock, Germany

[‡] Joint Mass Spectrometry Centre, Cooperation Group “Comprehensive Molecular Analytics” (CMA), Helmholtz Zentrum München – German Research Centre for Environmental Health, 85764 Neuherberg, Germany

[¶] Photonion GmbH, Hagenower Strasse 73, 19061 Schwerin, Germany

[§] DiSTeVA, LC-MS Laboratory, University of Urbino, Piazza Rinascimento 6, 61029 Urbino, Italy

^{||} These authors contributed equally.

*corresponding author: Ralf Zimmermann, Dr.-Lorenz-Weg 2, 18059 Rostock, Germany

email: ralf.zimmermann@uni-rostock.de

Contents:

Figure S1 – Instrumental setup of thermogravimetry (TG) coupled to REMPI-TOFMS

Figure S2 – Contour plot from TG-REMPI-TOFMS analysis of North Sea Crude oil

Figure S3 – Mass losses of oil samples in thermal analysis

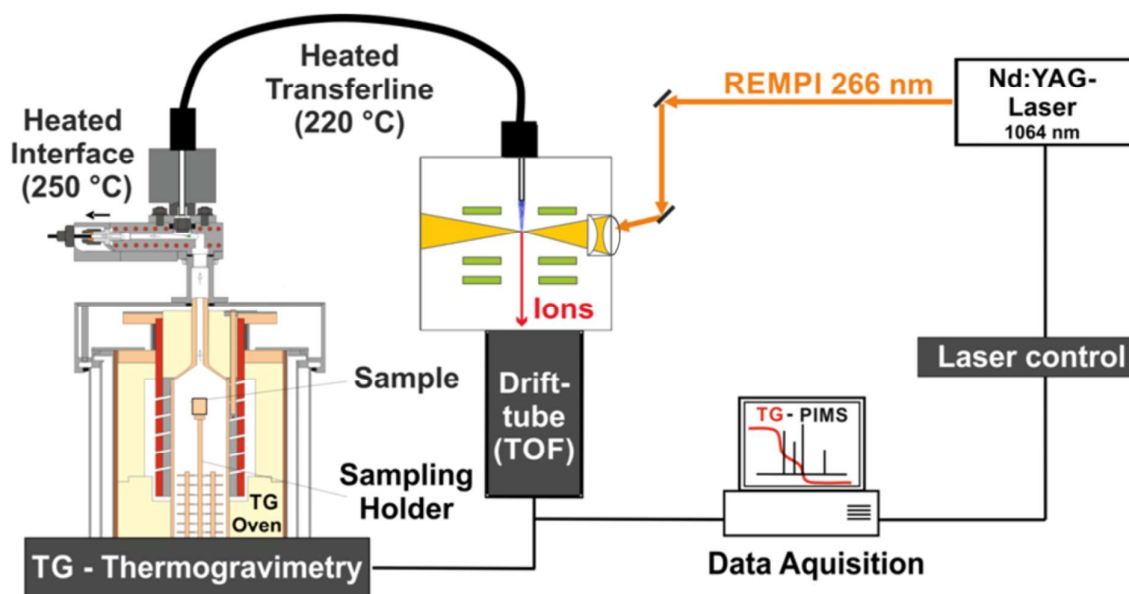


Figure S1 Instrumental setup the the thermogravimetry (TG) coupled to resonance-enhanced multi-photon ionization (REMPI) time-of-flight mass spectrometry (TOFMS).

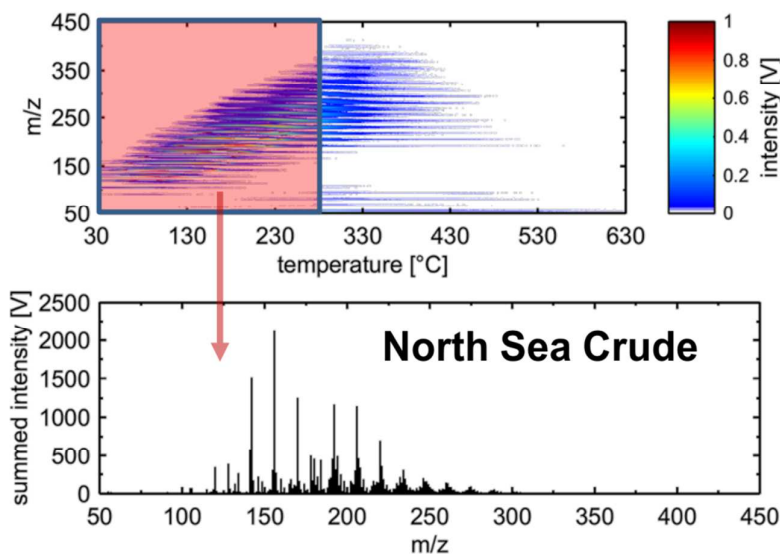


Figure S2 Contour plot of North Sea crude oil from a total TG-REMPI-TOFMS analysis (top). Spectra (red shadowed) up to the repeller temperature of the direct-REMPI setup (280 °C) are summed up and visualized as bar chart (bottom). The appearance of lower m/z in the temperature region between 200 °C and 500 °C indicates thermal decomposition of the sample by pyrolysis.

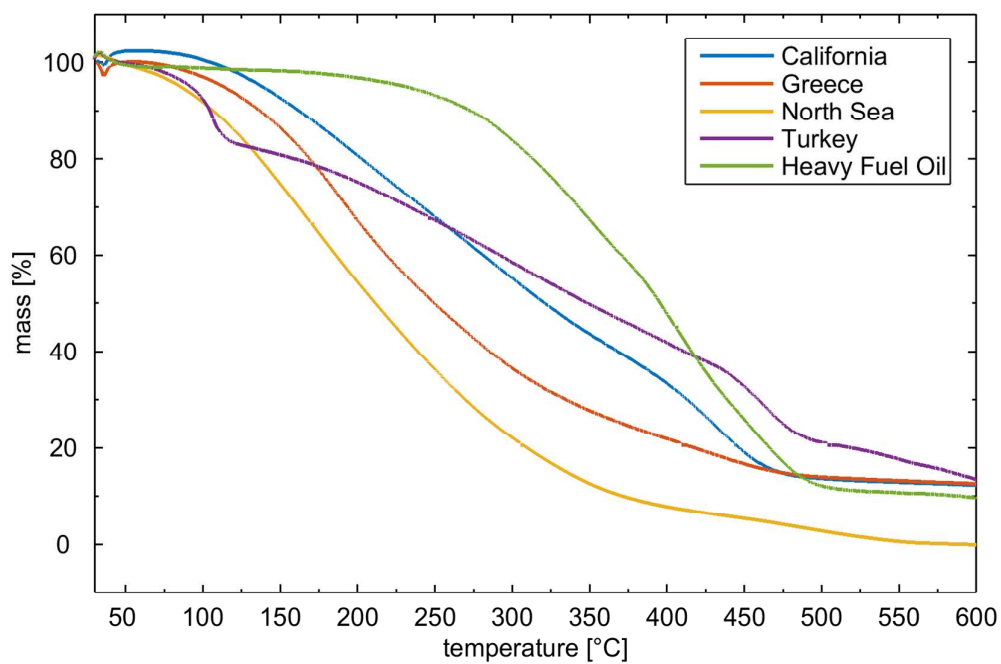


Figure S3 Mass losses of the five investigated oil samples during thermal analysis with 10 K/min which suggest the following order for the heaviness of the crude oils: North Sea < Greece < California < Turkey. The heavy fuel oil does not fit into this concept due to its production process.