

## Adsorptive and photo-Fenton properties of bimetallic MIL-100(Fe,Sn) and MIL-100(Fe,Ir) MOFs toward removal of tetracycline from aqueous solutions

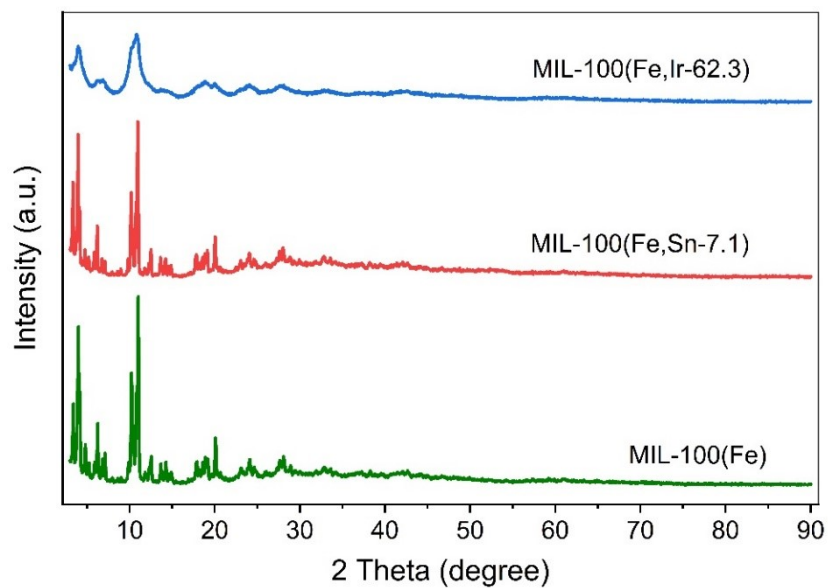
Naghmeh Sadat Mirbagheri<sup>ab</sup>, Philipp A. Heizmann<sup>ab</sup>, Vanessa Trouillet<sup>cd</sup>, Jan Büttner<sup>aef</sup>, Anna Fischer<sup>aef</sup> and Severin Vierrath<sup>ab\*</sup>

- University of Freiburg, Institute and FIT - Freiburg Center for Interactive Materials and Bioinspired Technologies, Georges-Köhler-Allee 105, 79110 Freiburg, Germany*
- Electrochemical Energy Systems, IMTEK - Department of Microsystems Engineering, University of Freiburg, Georges-Koehler-Allee 103, 79110 Freiburg, Germany*
- Karlsruhe Nano Micro Facility (KNMFi), Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen, Germany*
- Institute for Applied Materials, Energy Storage Systems, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen, Germany*
- Institute of Inorganic and Analytic Chemistry, University of Freiburg, Albertstr. 21, 79104 Freiburg, Germany*
- Cluster of Excellence livMatS @ FIT – Freiburg Center for Interactive Materials and Bioinspired Technologies, University of Freiburg, Georges-Köhler-Allee 105, D-79110 Freiburg, Germany*

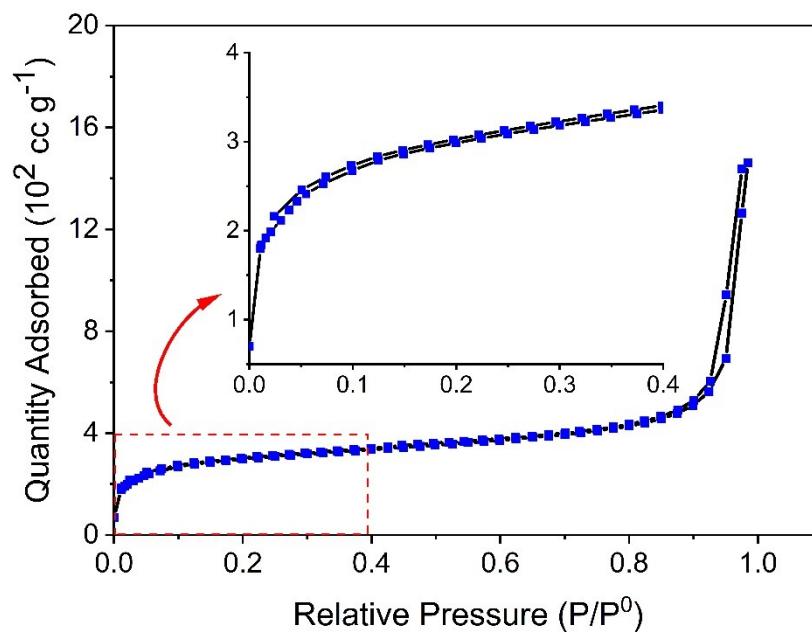
\* Corresponding author's E-mail: [severin.vierrath@imtek.uni-freiburg.de](mailto:severin.vierrath@imtek.uni-freiburg.de)

**Table S1.** Dark adsorption and photo-Fenton degradation efficiency of the synthesized MOFs

Synthesized MOFs	Dark adsorption	Photo-Fenton degradation
	TC removal (%)	TC removal (%)
MIL-100(Fe)	13.2 ± 2.6	57.3 ± 6.3
MIL-100(Fe,Sn-1.8)	12.3 ± 3.0	27.9 ± 4.8
MIL-100(Fe,Sn-3.5)	16.3 ± 1.7	38.3 ± 7.7
MIL-100(Fe,Sn-7.1)	18.0 ± 2.0	58.0 ± 5.6
MIL-100(Fe,Sn-14.2)	16.6 ± 0.9	51.2 ± 9.6
MIL-100(Fe,Ir-26.7)	32.1 ± 3.1	55.9 ± 1.2
MIL-100(Fe,Ir-50.2)	43.9 ± 0.7	44.8 ± 1.0
MIL-100(Fe,Ir-62.3)	47.6 ± 2.6	43.2 ± 0.3
MIL-100(Fe,Ir-100.5)	52.2 ± 3.5	38.5 ± 2.7



**Fig. S1.** XRD spectra of MIL-100(Fe), MIL-100(Fe,Sn-7.1), and MIL-100(Fe,Ir-62.3).



**Fig. S2.** Nitrogen adsorption-desorption isotherms of MIL-100(Fe,Ir-62.3).

**Table S2.** Doping metal content of the initial reactants and synthesized MOFs

MOFs	Dopant	$\text{mol}_{\text{dopant}} / (\text{mol}_{\text{dopant}} + \text{mol}_{\text{Fe}})$	
		Initial reactants	Synthesized MOFs
MIL-100(Fe,Sn-7.1)	Sn <sup>2+</sup>	9.9%	3.6%
MIL-100(Fe,Ir-62.3)	Ir <sup>3+</sup>	49%	1.6%