

Supplementary Information

Methane Conversion and Hydrogen Production over TiO₂/WO₃/Pt heterojunction photocatalysts

Saulo Amaral Carminati,^{*a} Eliane Ribeiro Januário,^a Arthur Pignataro Machado,^b Patrícia Ferreira Silvaino,^a Jorge Moreira Vaz,^a Estevam Vitorio Spinacé^{*a}

a Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP, Av. Prof. Lineu Prestes, 2242-Cidade Universitária, São Paulo, 05508-000, Brazil.

b Laboratório de Nanotecnologia e Energia Solar, Instituto de Química, Universidade Estadual de Campinas, Campinas, 13083-970, SP, Brazil.

* Corresponding authors:

Dr. Saulo Amaral Carminati

Dr. Estevam Vitorio Spinacé

Instituto de Pesquisas Energéticas e Nucleares- IPEN-CNEN/SP

Av. Prof. Lineu Prestes, 2242 – Cidade Universitária

05508-900 São Paulo – SP

Brazil

Tel.: +55-11-2810-5666

e-mail: saulocarminati89@gmail.com ; espinace@ipen.br

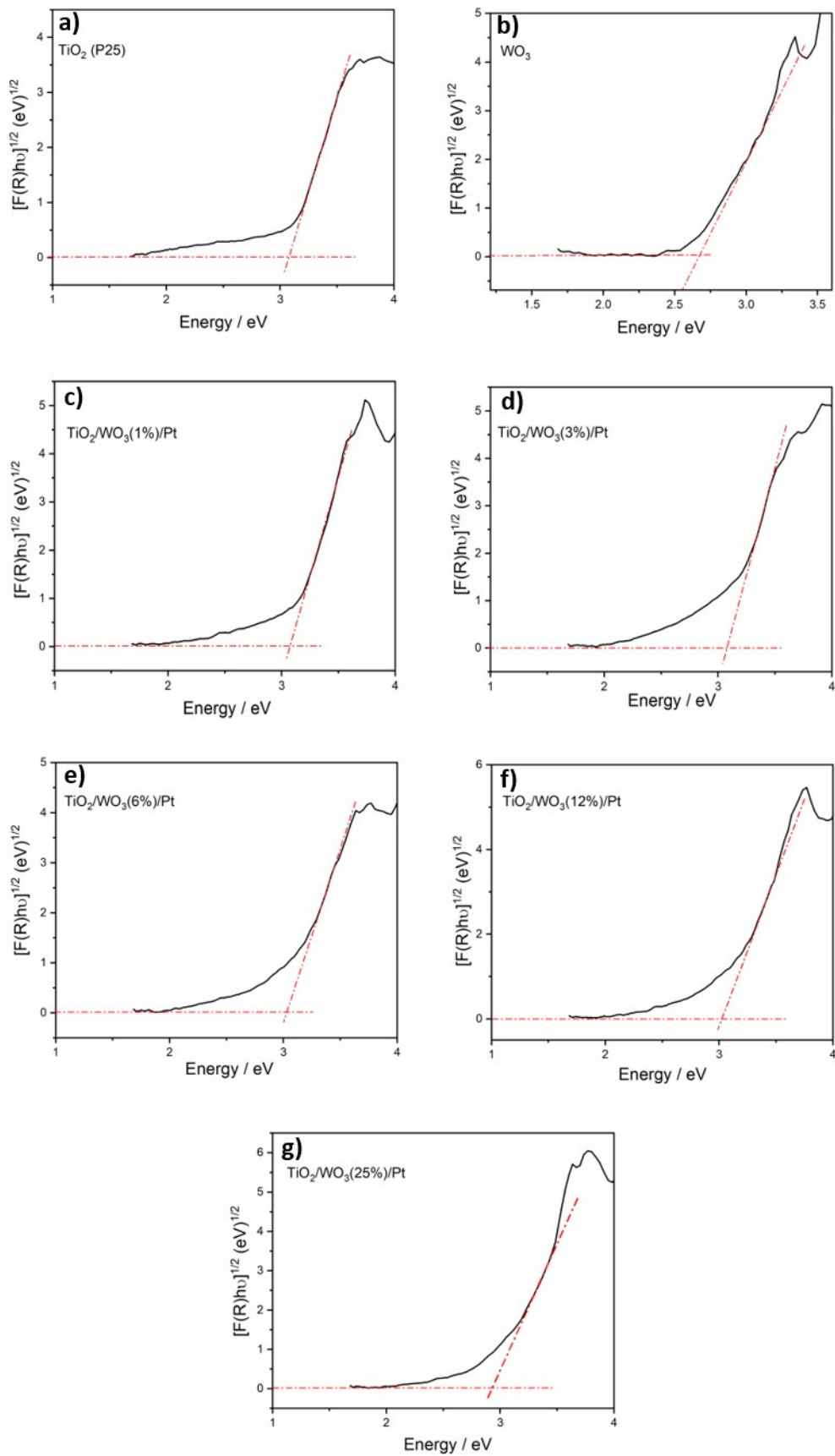


Figure S1: Kubelka–Munk plots of TiO₂ (P25), WO₃ and TiO₂/WO₃/Pt-based photocatalysts.

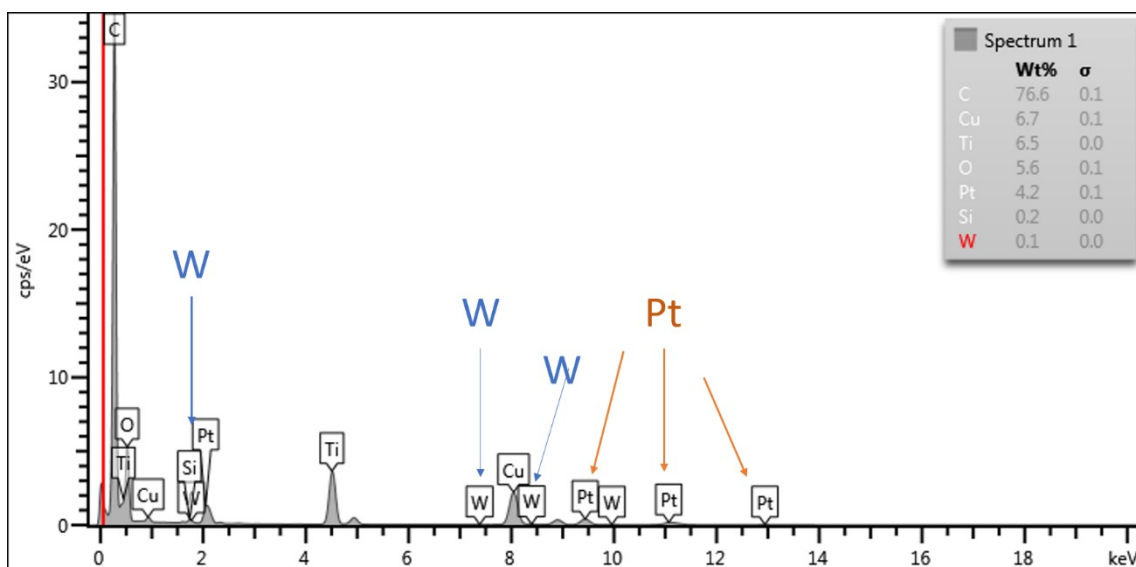


Figure S2: EDX spectrum image of TiO₂/WO₃/Pt material.

Table S1: Band gap values (eV) of the photocatalysts, determined by Kubelka Munk plots.

Photocatalyst	Band gap (E_g) value (eV)
TiO ₂ (P25)	3.10
WO ₃	2.68
TiO ₂ /WO ₃ (1%)/Pt	3.07
TiO ₂ /WO ₃ (3%)/Pt	3.08
TiO ₂ /WO ₃ (6%)/Pt	3.03
TiO ₂ /WO ₃ (12%)/Pt	3.02
TiO ₂ /WO ₃ (25%)/Pt	2.93

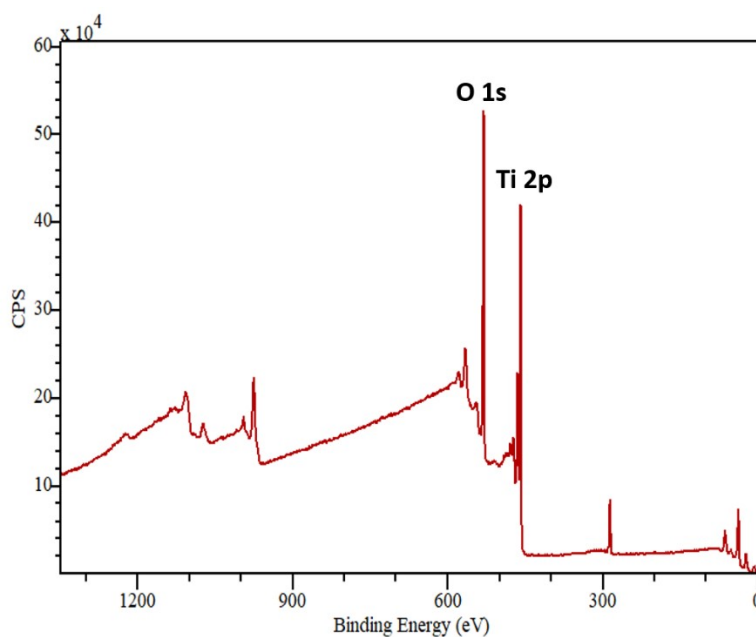


Figure S3: XPS survey Al K α photoelectron spectrum of TiO₂ (P25).