

Evaluating the Topological Surface Properties of Cu/Cr Thin Films Using 3D Atomic Force Microscopy Topographical Maps

Mohammad Sadeghi ¹, Amir Zelati ², Sahar Rezaee ^{3,*}, Carlos Luna ⁴, Robert Saraiva Matos ⁵, Marcelo Amanajás Pires ⁶, Nilson S. Ferreira ⁷, Henrique Duarte da Fonseca Filho ⁸, Azin Ahmadpourian ³ and Stefan Tălu ^{9,*}

¹ Mälardalens Högskola (EST), Mälardalen University, 722 20 Västerås, Sweden

² Department of Basic Sciences, Birjand University of Technology, Birjand 9719866981, Iran

³ Department of Physics, Kermanshah Branch, Islamic Azad University, Kermanshah 6718773654, Iran

⁴ Facultad de Ciencias Físico Matemáticas (FCFM), Universidad Autónoma de Nuevo León (UANL), Av. Universidad s/n, San Nicolás de los Garza 66455, Nuevo León, Mexico

⁵ Postgraduate Program in Materials Science and Engineering, Federal University of Sergipe, São Cristóvão 49100-000, SE, Brazil

⁶ Department of Physics, Federal University of Ceará—UFC, Fortaleza 60180-020, CE, Brazil

⁷ Department of Physics, Federal University of Sergipe, São Cristóvão 49100-000, SE, Brazil

⁸ Laboratory of Synthesis of Nanomaterials and Nanoscopy, Physics Department, Federal University of Amazonas-UFAM, Manaus 69067-005, AM, Brazil

⁹ The Directorate of Research, Development and Innovation Management (DMCDI), Technical University of Cluj-Napoca, 15 Constantin Daicoviciu St., 400020 Cluj-Napoca, Romania

* Correspondence: saharrezaee593@iauksh.ac.ir (S.R.); stefan_tă@yahoo.com or stefan.talu@auto.utcluj.ro (Ş.T.)

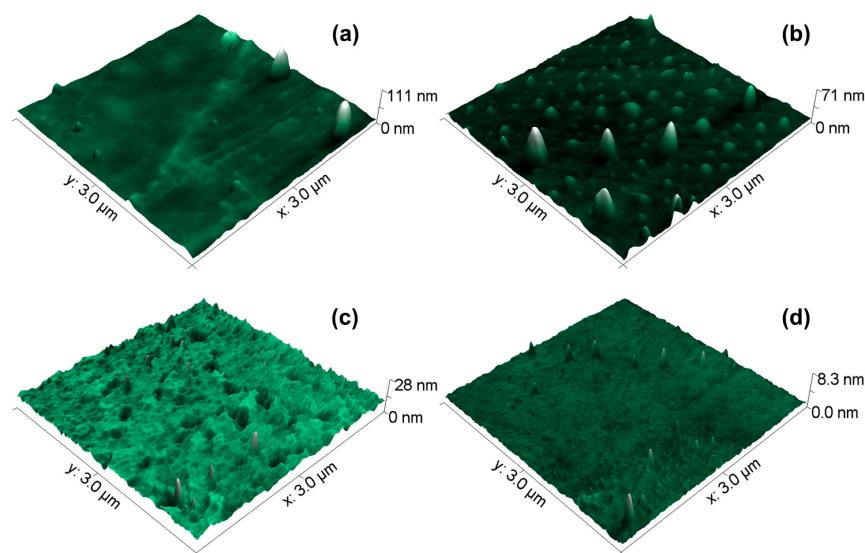


Figure S1. 3D AFM topographical maps of (a) BK7, (b) Glass, (c) ITO, and (d) Si substrates.

Table S1. Roughness of BK7, Si, and Glass substrates, according to ISO 25178-2:2012. The average results were expressed as mean values and standard deviation.

Parameter	Unit	Bk7	Glass	ITO	Si
Sq	[nm]	6.77 ± 1.36	6.82 ± 2.87	1.89 ± 0.05	0.85 ± 0.45