

Possibility of Applications of CSI Methods in studies C-Pd films

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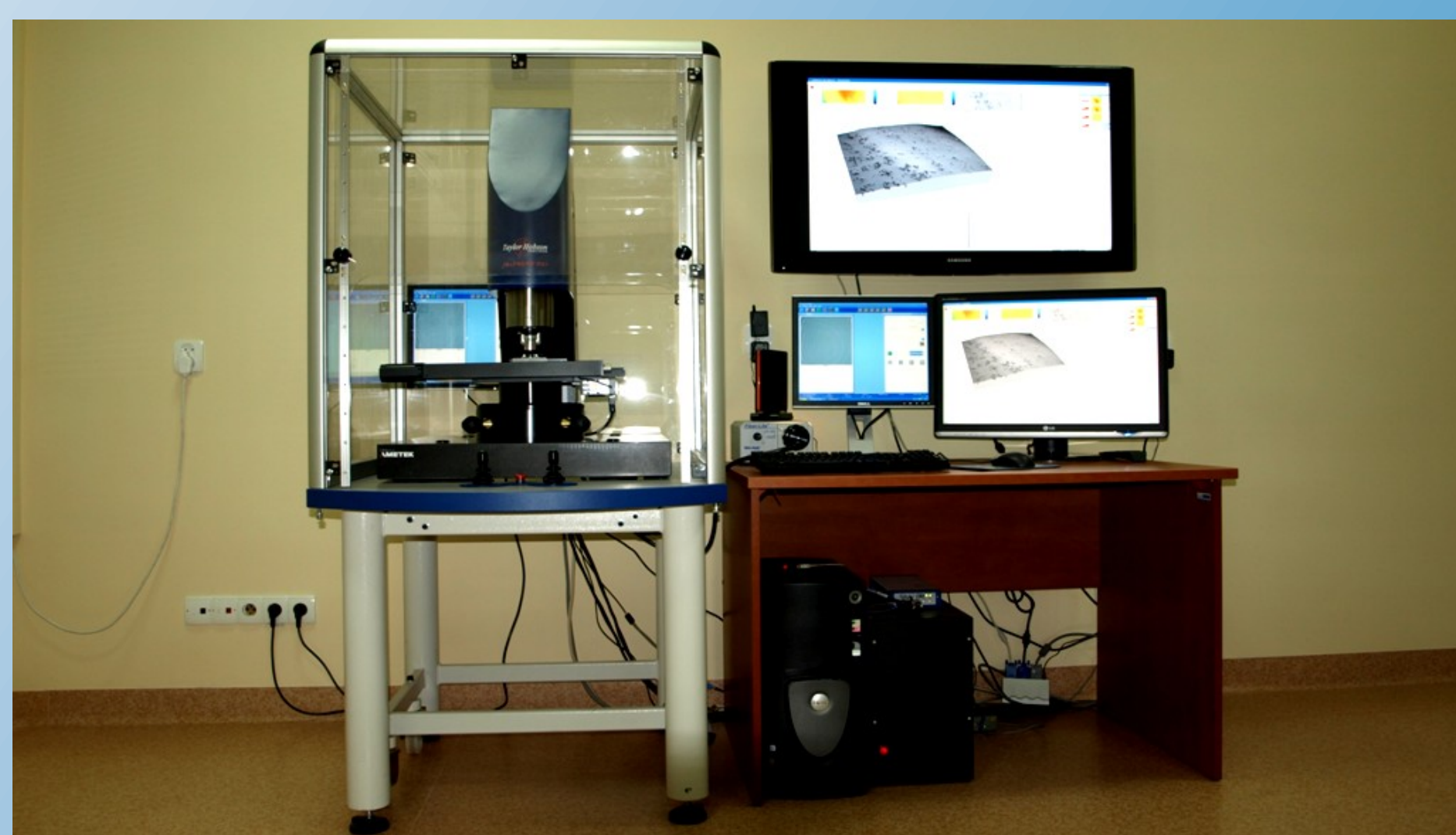
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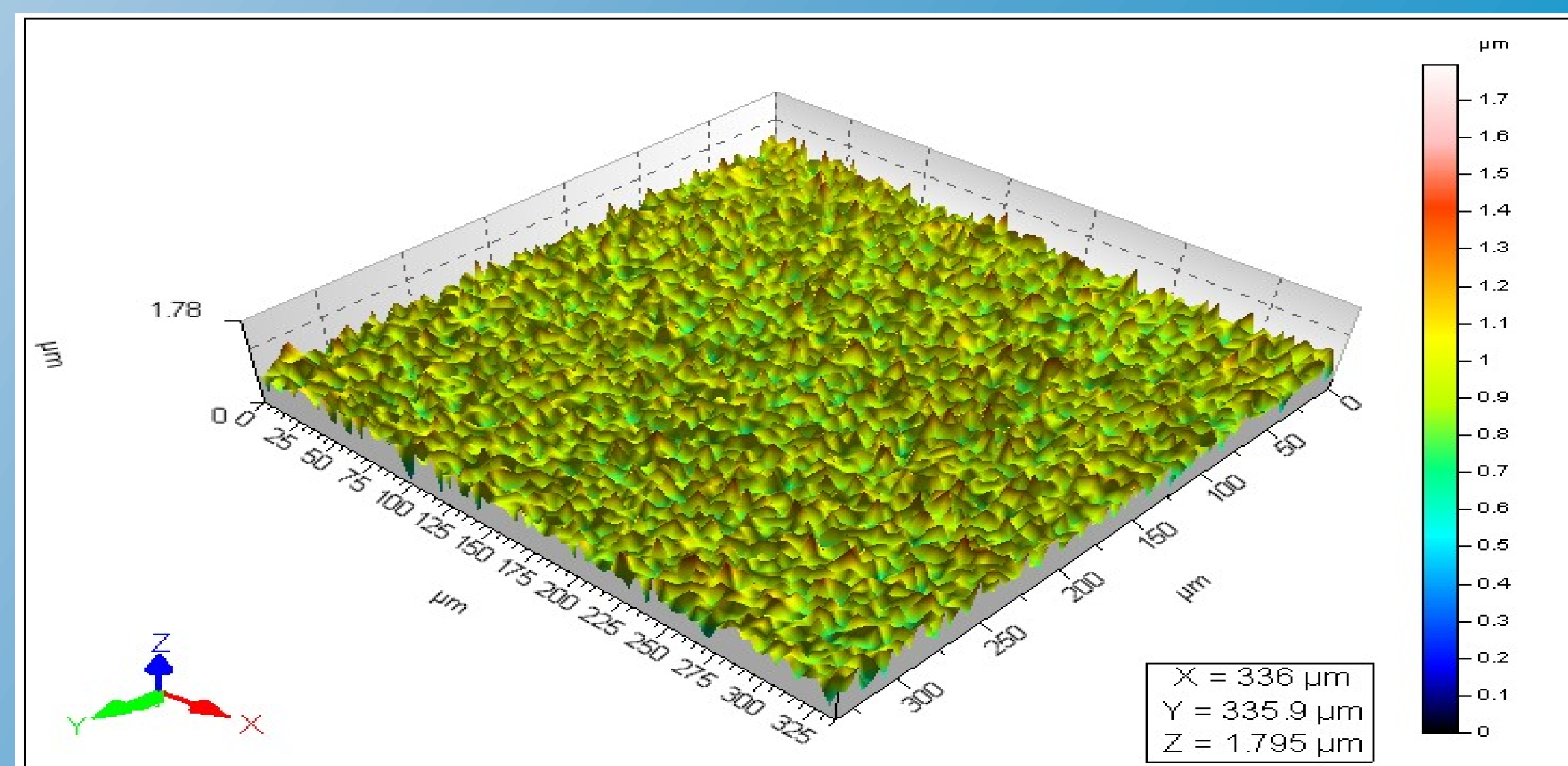
INTRODUCTION

Coherence Scanning Interferometry (CSI) gives new opportunities for investigating topographical properties of materials. It uses innovative, patented correlation algorithm to find the coherence peak and phase position of an interference pattern. The accuracy and repeatability of the CSI measurement depend on many parameters including the control and linearity of the vertical actuator, the performance of the camera, the design of the metrology frame, the stability of the

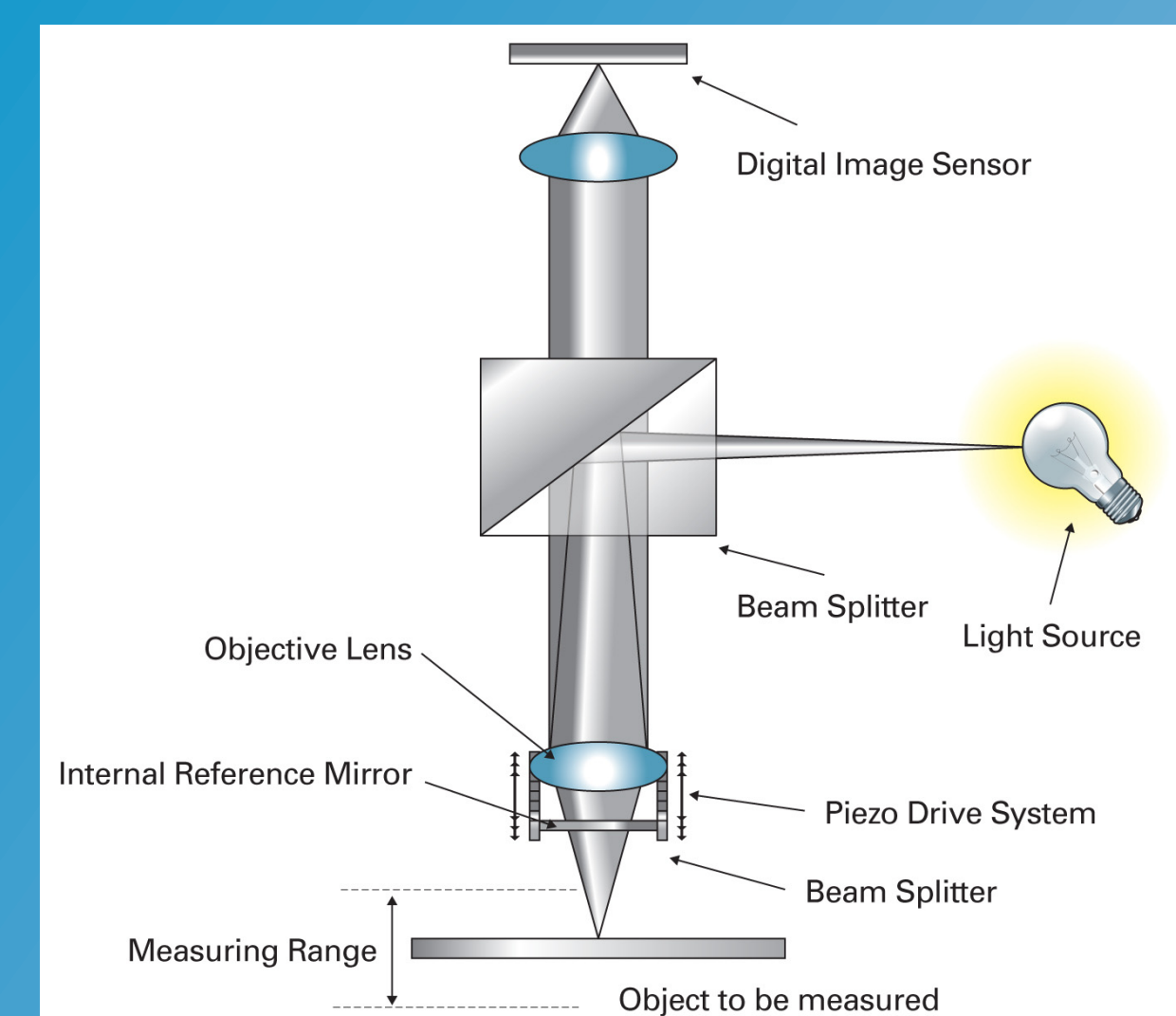
In our experiment we used the newest of CSI technique named CCI (Coherence Correlation Interferometry) - Talysurf CCI –Lite non-contact 3D profiler. Optical resolution X,Y was 400 nm, maximum vertical resolution ~ 0,01 nm, measurement time 20 sec. with step height repeatability < 0,1 %. Roughness plays an important role in determining how a real object will interact with its environment. Roughness is often a good predictor of the performance of a mechanical component, since irregularities in the surface may form nucleation sites for cracks or corrosion .



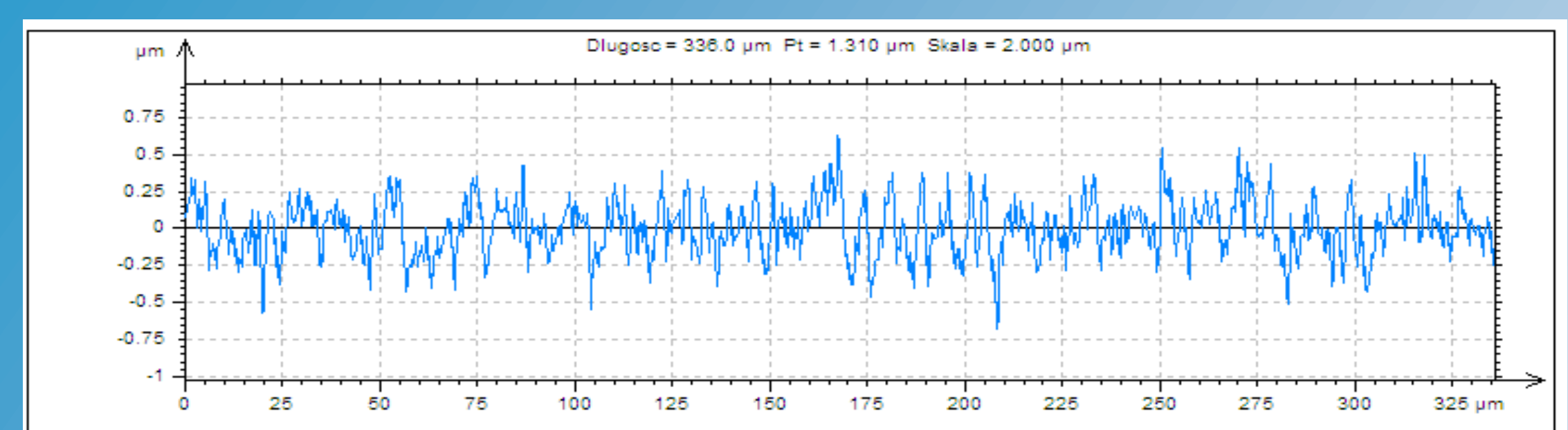
Talysurf CCI –Lite



CCI image - '3-dimensional' presentations for C-Pd PVD

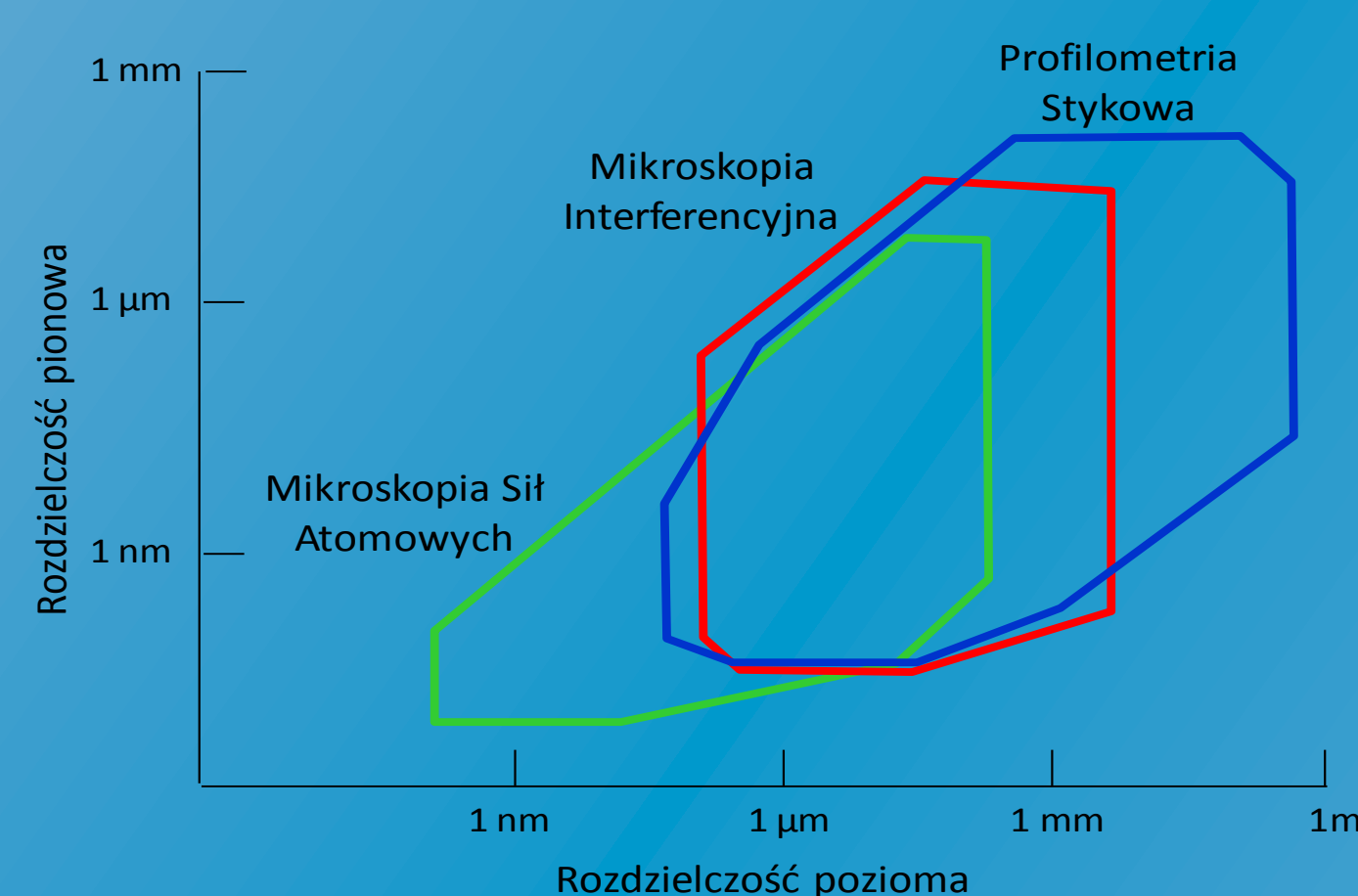


A typical CCI design

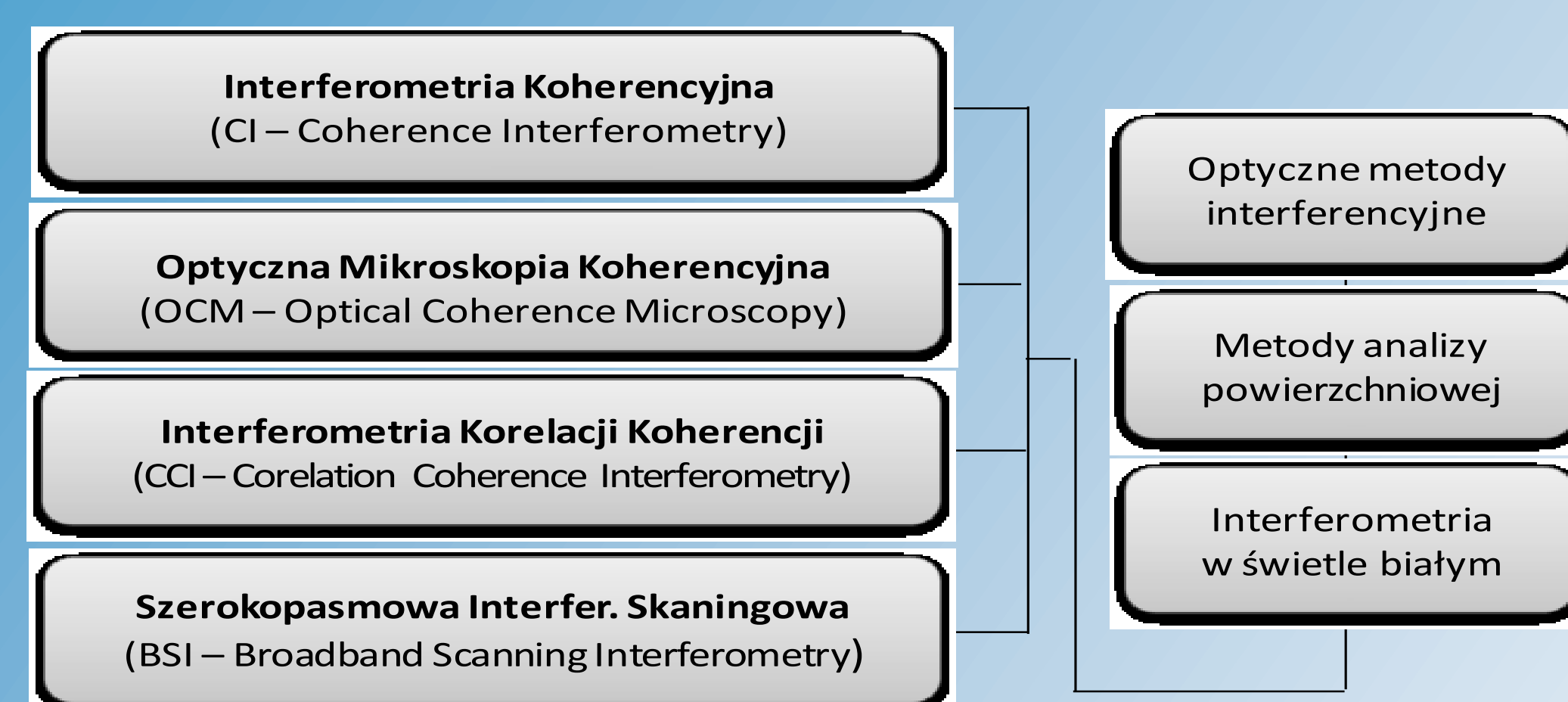


Roughness profile of porous Si

Amplitude parameters of roughness profile give information regarding the areal height deviation of the surface topography.



The CCI method can be a complementary tool to study surface topography of microporous materials as regards Atomic Force Microscopy and Scanning Electron Microscopy. The method has the following advantages: simple optical system, no requirement on vibration isolation, high sensitivity, large measuring range and the short measurement time. Application of the Coherence Correlation Interferometry in quantitative analysis topography of thin porous film needs further studies



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