POSTER PRESENTATION

Wafer Curvature Measurements of Thin Film Stress, Elastic Constant, Ion Surface Exchange Coefficient, Thermal Expansion Coefficient and Chemical Expansion Coefficients

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This poster will present a new, non-contact, electrode-free wafer curvature measurement technique [1-3] that can be used to obtain in situ/in operando ion surface exchange rate coefficients, thermal expansion coefficients, chemical expanson coefficients, and elastic constants on thin film samples as a function of simultaneoulsy measured stress state, temperature, water fugacity and oxygen fugacity. This poster will discuss the pros and cons of measuring these materials properties via the wafer curvature technique instead of more conventional approaches. In addition, this poster will provide practial tips for sucessful implementation of the wafer curvature measurement technique.

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References

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[2] Q. Yang and J. D. Nicholas. Porous Thick Film Lanthanum Strontium Ferrite Stress and Oxygen Surface Exchange Bilayer Curvature Relaxation Measurements. Journal of the Electrochemical Society, 161 (2014) F3025-F3031.

[3] J.D. Nicholas. Practical Considerations for Reliable Stress and Oxygen Surface Exchange Coefficients from Bilayer Curvature Relaxation Measurements, Extreme Mechanics Letters, 9 (2016) 405-421.