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**Unique signature of bivalent analyte surface plasmon resonance model: A model governed by non-linear differential equations<sup>1</sup>** PURUSHOTTAM TIWARI, Georgetown University, XUEWEN WANG, YESIM DARICI, JIN HE, Florida International University, AYKUT UREN, Georgetown University — Surface plasmon resonance (SPR) is a biophysical technique for the quantitative analysis of bimolecular interactions. Correct identification of the binding model is crucial for the interpretation of SPR data. Bivalent SPR model is governed by non-linear differential equations, which, in general, have no analytical solutions. Therefore, an analytical based approach cannot be employed in order to identify this particular model. There exists a unique signature in the bivalent analyte model, existence of an ‘optimal analyte concentration’, which can distinguish this model from other biphasic models. The unambiguous identification and related analysis of the bivalent analyte model is demonstrated by using theoretical simulations and experimentally measured SPR sensorgrams.

<sup>1</sup>Experimental SPR sensorgrams were measured by using Biacore T200 instrument available in Biacore Molecular Interaction Shared Resource facility, supported by NIH Grant P30CA51008, at Georgetown University

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