

## Accepted Manuscript

A Personal Story On a Renaissance in Valence Bond Theory: A Theory Coming of Age!

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PII: S2210-271X(17)30067-1

DOI: <http://dx.doi.org/10.1016/j.comptc.2017.02.011>

Reference: COMPTC 2407

To appear in: *Computational & Theoretical Chemistry*

Received Date: 19 January 2017

Accepted Date: 9 February 2017

Please cite this article as: S. Shaik, A Personal Story On a Renaissance in Valence Bond Theory: A Theory Coming of Age!, *Computational & Theoretical Chemistry* (2017), doi: <http://dx.doi.org/10.1016/j.comptc.2017.02.011>

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**A Personal Story On a Renaissance in Valence Bond Theory: A Theory Coming  
of Age!**

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**Title Running Head:**

**Abstract:** This is a personal story on the author's way of 'discovering' valence bond theory and using it to formulate unified models of chemical reactivity and bonding. Since scientific life is just a part of life, the story blends sub-stories of life events with stories on scientific events, colleagues, papers, meetings, and friendships. This is also a story of a wonderful and insightful theory, which is coming of age with applications and computational capabilities that start to match the most advanced post Hartree-Fock calculations.

**Keywords:** Valence-bond Theory, Valence bond state-correlation diagrams, VBSCD, VBCMD, Bonding models, Charge-shift bonding, Bonding in metal clusters, quadruple bonding, VB modeling of chemical reactivity,  $S_N2$ , H-abstraction, PCET, Diels-Alder, P450 hydroxylation, P450 epoxidation, Excited states, Electric field effects

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