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On Short Ranged Resonating Valence Bond Liquids

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Over 40 years ago, P W Anderson proposed the short ranged resonating valence bond state as an alternative to Neel order in antiferromagnets with strong fluctuations—in hindsight, the first proposal for a topologically ordered Z_2 spin liquid. In the last year, convincing numerical evidence has accumulated for the existence of such Z_2 spin liquids in short ranged Hamiltonians on simple lattices in two dimensions. I will sketch the intellectually productive historical route between these two developments and survey what we now know about the physics of the short ranged RVB and allied states of matter.