



# Geometrical Aspects of the Intriligator-Morrison-Seiberg Superpotential

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Recent joint work with Steven Glenn Jackson (UMB), Mboyo Esole (Harvard), and Ravi Jagadeesan (Harvard) has produced a theory for understanding the incidence geometry of the central hyper-plane arrangement whose hyper-planes are the vanishing loci of the weights of the first and the second fundamental representations of  $\mathfrak{gl}(n)$  restricted to the dual fundamental Weyl chamber. We obtain generating functions that count flats and faces of a given dimension. This counting is interpreted in physics as the enumeration of the phases of the Coulomb and mixed Coulomb-Higgs branches of a five dimensional gauge theory with 8 supercharges in presence of hyper-multiplets transforming in the fundamental and anti-symmetric representation of a  $U(n)$  gauge group as described by the Intriligator-Morrison-Seiberg superpotential. I shall outline the theory. The  $SU(n)$  case presents a more complicated geometry; I shall elaborate on its nature if time permits.

## Biography

Alfred Noël was born in the city of Cayes, Haiti. He studied pure and applied mathematics at Northeastern University in Boston Massachusetts. His PhD dissertation, in representation theory of Lie groups, was directed by Donald R. King. He spent eight years at ComputerVision as a software engineer and has been at the University of Massachusetts Boston since 1998 where he is currently a Professor of Mathematics.