THEORY IS PRACTICAL: The Philosophy of Design

The founders of modern structural engineering created structures that were inspiring in their form and economical in their execution. While this economy was undoubtedly driven by financial pressures, it was also a result of the ideological purity of the design. Best exemplified by structures such as Brunel’s Royal Albert Bridge or Paddington train shed, this structural clarity demonstrates high design skill, as complicated structural designs were simply beyond an engineer’s ability to calculate. However, within the past few years, the explosion of computational power has enabled engineers to design and create structures that are extremely complex and beyond one’s ability to comprehend without the aid of a computer (some are conceptually unfathomable even with a computer). Our modern analytical tools can yield a more efficient structure than one achievable through simpler means, but these same tools can also enable the creation of overly complicated structures that are financially and materially expensive. From designing bridges to designing buildings that are bridges, Bill Baker will propose a design philosophy to “bridge” the divide between design and analysis.