The electrochemical and catalytic properties of nitric-oxide synthase (NOS) were explored by Li et al. using the intrinsic spectroscopic properties of this enzyme. In a series of elegant experiments, the catalytic function of NOS was correlated to specific structural and conformational features. The flavin mononucleotide (FMN) domain and heme/FMN bidomain, were evaluated though redox titrations (Dutton's method) for both the wild-type and a ΔG810 mutant of NOS. Spectroscopic and electrochemical features were used to characterize the differences in catalytic properties of the full-length wild-type and mutant enzyme, under a variety of conditions designed to explore the relevance of changes in structure, conformation, and surrounding environment of the reaction center of this highly important enzyme.

The authors of this paper were very clear about the goals these experiments were designed to achieve, and provided a succinct, yet thorough introduction of these goals, the enzyme itself, and the relevance of why the research was performed. In addition, apt comparisons were made to other well studied and model enzymes, which provided a broad application for these results. The procedures done were thoughtfully reported, with numerous observations that would enable other scientists to more easily repeat or adapt them to their own work. Absent were opaque and almost misleading reports that are often seen in the procedures sections of less well written papers. Experimental results were likewise given brief and insightful treatments. Data were examined with slight modifications of well known models, rather than complex and esoteric single use equations. Finally, the discussion proved to be a straightforward interpretation the the results obtained, with little hedging or vagueness, although alternative conclusions were offered, the overall importance and relevance were reiterated.