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made without departing from the invention in its broader aspects. The appended claims, therefore, are intended to cover all such changes and modifications as they fall within the true spirit and scope of the invention.

We claim:

1. A method for performing electrochemistry on fuel cell electrodes comprising a catalyst system, the method characterized by the step of reacting a sulfur-containing fuel on the catalyst system, which comprises a nickel-based catalyst and praseodymium, wherein the praseodymium inhibits sulfur poisoning of the catalyst.

2. The method of claim 1, wherein the catalyst system further comprises ruthenium.

3. The method of claim 1, wherein the catalyst system further comprises cerium.

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4. The method of claim 1, wherein the catalyst system further comprises ruthenium and cerium.

5. The method of claim 1, wherein the nickel-based catalyst comprises porous Ni-YSZ.

5 6. The method of claim 1, wherein the catalyst system is continuously exposed to the sulfur-containing fuel.

7. The method of claim 1, wherein the praseodymium exists in mixed valence states.

10 8. A method for performing electrochemistry on fuel cell electrodes comprising a catalyst system, the method characterized by the step of reacting a sulfur-containing fuel on the catalyst system, which comprises a catalyst and a mixed phase of Pr^{3+} and Pr^{4+} , wherein the mixed phase of praseodymium inhibits sulfur poisoning of the catalyst.

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