

## BaCe<sub>0.9</sub>Y<sub>0.1</sub>O<sub>3-α</sub>固体电解质燃料电池性能

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**摘要** 通过高温固相反应制备了混合离子(质子和氧离子)导电性陶瓷BaCe<sub>0.9</sub>Y<sub>0.1</sub>O<sub>3-α</sub>,以该陶瓷作固体电解质, Pt作电极材料组成氢-空气燃料电池,测定了该燃料电池高温(600~1000℃)下放电时的电压-电流特性。结果表明,该燃料电池具有稳定的放电性能,输出功率密度高,1000℃下的最大短路电流密度和输出功率密度分别为980mA·cm<sup>-2</sup>和0.22mW·cm<sup>-2</sup>,高于同类燃料电池的性能。

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## Performance of solid oxide fuel cell using BaCe<sub>0.9</sub>Y<sub>0.1</sub>O<sub>3-α</sub> as a solid electrolyte

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**Abstract** Using mixed proton and oxide-ion conductor with BaCe<sub>0.9</sub>Y<sub>0.1</sub>O<sub>3-α</sub> as a solid electrolyte, hydrogen-air fuel cell was constructed. The performances of the cell were investigated at temperatures between 600 and 1000℃. The maximum short-circuit current density and the maximum power output density of this cell at 1000℃ were about 980mA·cm<sup>-2</sup> and 0.22mW·cm<sup>-2</sup>, respectively. These performances were significantly better than those of other solid oxide fuel cells based on BaCe<sub>0.9</sub>Y<sub>0.1</sub>O<sub>3-α</sub> (M=Sm, Gd, Yb, Nd, etc.) reported so far.

**Key words** [YTTRIUM OXIDE](#) [CERIUM OXIDE](#) [BARIUM OXIDE](#) [SOLID ELECTROLYTE](#) [FUEL CELLS](#) [CERAMICS](#)

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扩展功能

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