PLATINUM ALLOY ELECTROCATALYST WITH ENHANCED RESISTANCE TO ANION POISONING FOR LOW AND MEDIUM TEMPERATURE FUEL CELLS

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Description

Current fuel cells are associated with poor oxygen reduction reaction kinetics, especially at medium temperature range (150-200OC), resulting in significantly lower power densities. Moreover, the prior-art approaches for preparing electro-catalysts typically follow a two-step approach, wherein an electro-catalyst preparation is followed by addition of alloying element salt solution to this electro-catalyst. However, such approaches result in incomplete alloy formation along with lacked provision for controlled surface morphology. **This novel approach enables development of platinum based binary and ternary alloy electro-catalysts, overcoming most prior-art limitations.**

Value Proposition

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The electro-catalyst:

- Results in a greater resistance to surface poisoning from anions present in acid-electrolytes, especially for low and medium temperature fuel cells
- Enables a significant enhancement of oxygen reduction reaction with improved associated performance
- Allows for improved economies of scale with enhanced commercial acceptance
- Allows for a controlled surface morphology as compared to conventional catalysts
- Enables an effective lowering of platinum dissolution, and an enhanced anion free platinum surfaces
- Would be commercially useful for applications such as in phosphoric acid, direct methanol and other fuel cells.

Intellectual Property Status

Pending Utility Application 13/119,937

License Status

Available for license

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