TUNABLE FERROELECTRIC SUPPORTED CATALYSTS AND METHOD AND USES THEREOF

Figure 1

Abstract: Disclosed are tunable catalysts and methods of controlling the activity of a catalyst. For example, disclosed are methods of controlling the activity of a catalyst, comprising providing a catalyst, comprising a ferroelectric substrate of finite thickness comprising two opposing surfaces, the ferroelectric substrate being characterized as having a polarization; an electrode surrounding one of the surfaces of the ferroelectric substrate; and a catalytically active material surrounding the surface of the ferroelectric substrate opposing the electrode; and subjecting the ferroelectric substrate to a controllable electric field to give rise to a modulation of the polarization of the ferroelectric substrate, whereby the modulation of the polarization controllably alters the activity of one or more chemical species on the catalytically active material.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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A. CLASSIFICATION OF SUBJECT MATTER
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USPC - 429/40
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - H01M 4/86,90,92 (2008.04)
USPC - 429/40-45; 439/3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPTO EAST System (US, USPG-PUB, EPO, JPO, DERWENT), DialogPro, IEEEExplore, GoogleScholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>11, 14, 15, 17, 18, 21-23, 28, 44, 46, 47, 50-52, 57, 68</td>
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<td>US 5,555,486 A (Kingon et al.) 10 September 1996 (10.09.1996) entire document</td>
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