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(54) Title (EN): PROPULSION APPARATUS FOR SPACE VEHICLES AND CORRESPONDING METHOD

(54) Title (FR): APPAREIL DE PROPULSION POUR VÉHICULES SPATIAUX ET PROCÉDÉ CORRESPONDANT

(57) Abstract:

(EN): Propulsion apparatus (10) for space vehicles, comprising a solid state oxygen-rich source layer (11), means (12) for extracting oxygen from said solid state oxygen-rich source layer (11), means (16, 14, 17) for accelerating correspondingly extracted oxygen ions into vacuum. According to the invention, it comprises a stack including said solid state oxygen-rich source layer (11), an active layer (16) being deposited above said solid state oxygen-rich source layer (11), in contact with said solid state oxygen-rich source layer, said active layer (16) being formed with a material different from said solid state oxygen-rich source layer (11), said material being an oxide presenting impedance hysteresis behavior, i.e. a memristor, wherein in a low resistance state oxygen ions (22) are expelled through the active layer (16) and wherein in a high resistance state the active layer (16) ceases expelling oxygen ions (22).

(FR): L'invention concerne un appareil de propulsion (10), pour véhicules spatiaux, qui comprend une couche de source riche en oxygène à l'état solide (11), des moyens (12) pour extraire de l'oxygène de ladite couche de source riche en oxygène à l'état solide (11) et des moyens (16, 14, 17) pour accélérer de façon correspondante des ions oxygène extraits proportionnellement dans le vide. Selon l'invention, ledit appareil comprend un empilement de ladite couche de source riche en oxygène à l'état solide (11), une couche active (16) étant déposée sur ladite couche de source riche en oxygène à l'état solide (11), en contact avec ladite couche de source riche en oxygène à l'état solide, ladite couche active (16) étant constituée par un matériau différent de celui de ladite couche de source riche en oxygène à l'état solide (11), ledit matériau étant un oxyde présentant un comportement d'hystérésis d'impédance, c'est-à-dire une mémristance, dans un état de faible résistance, des ions oxygène (22) étant expulsés à travers la couche active (16), et, dans un état de résistance élevée, la couche active (16) cessant d'expulser des ions oxygène (22).

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