

PROPULSION APPARATUS FOR SPACE VEHICLES AND CORRESPONDING METHOD

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PROPULSION APPARATUS FOR SPACE VEHICLES AND CORRESPONDING METHOD / Chiolerio, A.; Porro, S.. - (2016).

Availability:

This version is available at: 11583/2847383 since: 2020-10-02T15:40:31Z

Publisher:

Published

DOI:

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(Article begins on next page)

(12) International Application Status Report

Received at International Bureau: 02 December 2016 (02.12.2016)

Information valid as of: 23 April 2018 (23.04.2018)

Report generated on: 02 October 2020 (02.10.2020)

(10) Publication number:

WO2017/093906

(43) Publication date:

08 June 2017 (08.06.2017)

(26) Publication language:

English (EN)

(21) Application Number:

PCT/IB2016/057210

(22) Filing Date:

30 November 2016 (30.11.2016)

(25) Filing language:

English (EN)

(31) Priority number(s):

102015000065421 (IT)

(31) Priority date(s):

04 December 2015 (04.12.2015)

(31) Priority status:

Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:

F03H 1/00 (2006.01); **H01L 45/00** (2006.01); G11C 13/00 (2006.01)

(71) Applicant(s):

FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA [IT/IT]; Via Morego, 30 I-16163 Genova (IT) (*for all designated states*)

(72) Inventor(s):

CHIOLERIO, Alessandro; c/o Fondazione Istituto Italiano di Tecnologia Via Morego, 30 I-16163 Genova (IT)
PORRO, Samuele; c/o Fondazione Istituto Italiano di Tecnologia Via Morego, 30 I-16163 Genova (IT)

(74) Agent(s):

CROVINI, Giorgio; c/o Buzzi, Notaro & Antonielli d'Oulx Corso Vittorio Emanuele II, 6 I-10123 Torino (IT)

(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).

International search report:

Received at International Bureau: 23 March 2017 (23.03.2017) [EP]

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM