

Title (en)

ENVIRONMENTALLY RESPONSIVE BI-COMPONENT META FIBER TEXTILES AND METHODS OF MANUFACTURE

Title (de)

UMWELTVERTRÄGLICHE ZWEIKOMPONENTEN-METAFASERTEXTILIEN UND HERSTELLUNGSVERFAHREN

Title (fr)

TEXTILES EN MÉTA-FIBRES À DEUX COMPOSANTS SENSIBLES À L'ENVIRONNEMENT ET PROCÉDÉS DE FABRICATION

Publication

**EP 3867430 A4 20230426 (EN)**

Application

**EP 19874357 A 20190430**

Priority

- US 201862746347 P 20181016
- US 2019029781 W 20190430

Abstract (en)

[origin: WO2020081121A1] A bimorph meta fiber is formed through spinning of two antagonistic polymer melts, one of which contains pre-compounded optical nanostructures, into an eccentric sheath-core configuration or a side-by-side key-lock configuration. The bimorph meta fiber is capable of an adaptive regulation of the infrared radiation responsive to humidity level deviation from a comfort zone or perspiration level of the wearer of the garment fabricated from the meta fibers. The bimorph meta fibers are humidity/heat trained to attain dynamical environmentally responsive behavior to maintain the humidity/thermal comfort zone at various the humidity level fluctuations.

IPC 8 full level

**D01D 5/32** (2006.01); **D01D 5/34** (2006.01); **D01F 1/10** (2006.01); **D01F 8/00** (2006.01); **A41D 27/28** (2006.01); **A41D 31/14** (2019.01)

CPC (source: EP US)

**D01D 5/32** (2013.01 - EP); **D01D 5/34** (2013.01 - EP); **D01F 1/10** (2013.01 - EP US); **D01F 1/106** (2013.01 - EP); **D01F 8/00** (2013.01 - EP); **D01F 8/12** (2013.01 - US); **D01F 8/14** (2013.01 - US); **D03D 15/283** (2021.01 - US); **D03D 15/292** (2021.01 - US); **D03D 15/30** (2021.01 - US); **D03D 15/527** (2021.01 - US); **D03D 15/547** (2021.01 - US); **A41D 27/285** (2013.01 - EP); **A41D 31/14** (2019.02 - EP); **D01F 8/06** (2013.01 - EP); **D01F 8/12** (2013.01 - EP); **D01F 8/14** (2013.01 - EP); **D10B 2101/122** (2013.01 - US); **D10B 2331/02** (2013.01 - US); **D10B 2331/04** (2013.01 - US); **D10B 2401/022** (2013.01 - US); **D10B 2501/00** (2013.01 - US)

Citation (search report)

- [XAI] CN 101532190 A 20090916 - WUXI AOLIN TEXTILE CO LTD
- [A] WO 03027365 A1 20030403 - OUTLAST TECHNOLOGIES INC [US], et al
- [A] EP 2441864 A2 20120418 - MMI IPCO LLC [US], et al
- See also references of WO 2020081121A1

Designated contracting state (EPC)

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

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**WO 2020081121 A1 20200423**; CN 113166984 A 20210723; EP 3867430 A1 20210825; EP 3867430 A4 20230426; US 2021372014 A1 20211202

DOCDB simple family (application)

**US 2019029781 W 20190430**; CN 201980075643 A 20190430; EP 19874357 A 20190430; US 201917286120 A 20190430