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(54) Title: SPECTRUM RECONSTRUCTION METHOD FOR MINATURE SPECTROMETERS

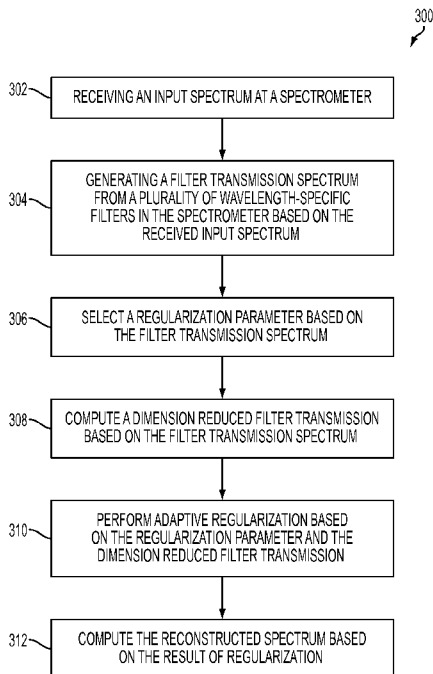


FIG. 3

(57) Abstract: Miniature spectrometers produce low resolution spectral data due to their size limitations. A method for processing these spectral data is proposed. The spectral data from a low resolution spectrometer is enhanced to a higher resolution, or processed to be in the wavelength domain. This process is called spectrum reconstruction, and can be used in low cost and miniature spectrometers with limited spectral resolution. The proposed method is noise robust, adapts to input spectrum, and can be used across many types of spectrometric devices without any manual adjustment of parameters.





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A. CLASSIFICATION OF SUBJECT MATTER**G01J 3/02(2006.01)i**

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)

G01J 3/02; G01N 21/21; G01J 3/447; G01J 3/45; A61B 5/00; G01B 9/02

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: "SPECTROMETER," "SPECTROSCOPE," "SPECTRUM," "RECONSTRUCTION," "RESOLUTION," "FILTER," "REGULARIZATION," AND "ADAPTIVE"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0049809 A1 (KATE BECHTEL et al.) 01 March 2007 See the abstract; figures 3-5, 18B ; claims 1-82	1-17
A	US 05245406 A (MASUTANI; KOJI) 14 September 1993 See the abstract; figures 1-13 ; claims 1-6	1-17
A	US 2007-0171424 A1 (Robert D. Te Kolste and Alan D. Kathman) 26 July 2007 See the abstract; figures 1-9 ; claims 1-27	1-17
A	EP 2112498 A1 (TOKYO INSTITUTE OF TECHNOLOGY) 28 October 2009 See the abstract; figures 1-5 ; claims 1-14	1-17
A	WO 01-65219 A1 (ECOLOTRON, INC.) 07 September 2001 See the abstract; figures 1A-7 ; claims 1-18	1-17

 Further documents are listed in the continuation of Box C. See patent family annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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