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Lee et al.

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(54) **DUAL-SPECTRUM HEAT PATTERN
SEPARATION ALGORITHM FOR ASSESSING
CHEMOTHERAPY TREATMENT RESPONSE
AND EARLY DETECTION**

(58) **Field of Classification Search**

USPC 382/100, 103, 106-107, 128-134, 162,
382/168, 173, 181, 199-201, 219-222, 232,
382/254, 274, 276, 295, 305, 312;
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See application file for complete search history.

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This patent is subject to a terminal dis-
claimer.

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G06K 9/00 (2006.01)
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(52) **U.S. Cl.**
USPC **382/128; 382/274; 250/370.08**

(57) **ABSTRACT**

It is developed a Dual-Spectrum Heat Pattern Separation (DS-HPS) algorithm to quantify the energy from the area of the high temperature tissues, called q_H map, and decompose the body surface into the high and normal temperature areas based on a pair of middle-wave Infra-red images and long-wave Infra-red images. Further, with longitudinal registra-
tion, we can detect the cancerous tissues and assess the che-
motherapy treatment response on a pixel by pixel basis
according to the change of the q_H map derived by the DS-HPS
algorithm. The preliminary result shows the area and the q_H
values in the high temperature area are decreased as the
patients receive more chemotherapy. These suggest the pro-
posed algorithm could capture the incremental or decremen-
tal of the energies emitted by the cancerous tissues, which has
the potentials for chemotherapy assessment and early detec-
tion.

14 Claims, 5 Drawing Sheets

