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Zuo et al.

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(54) **METHODS AND APPARATUS FOR CHARACTERIZATION OF PETROLEUM FLUID EMPLOYING ANALYSIS OF HIGH MOLECULAR WEIGHT COMPONENTS**

(58) **Field of Classification Search**
CPC G01N 33/2823; E21B 49/00; E21B 2049/085
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See application file for complete search history.

(75) Inventors: **Youxiang Zuo**, Edmonton (CA); **Denise E. Freed**, Newton Highlands, MA (US); **Oliver Clinton Mullins**, Ridgefield, CT (US); **Christopher Harrison**, Auburndale, MA (US); **Mary Jane Tsang Mui Ching**, Rose-Hill (MU); **Huang Zeng**, Edmonton (CA)

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(73) Assignee: **Schlumberger Technology Corporation**, Sugar Land, TX (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1128 days.

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Primary Examiner — Tung S Lau
Assistant Examiner — Xiuquin Sun
(74) *Attorney, Agent, or Firm* — Kenneth L. Kincaid

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(57) **ABSTRACT**
A methodology that performs downhole fluid analysis of fluid properties of a reservoir and characterizes the reservoir based upon such downhole fluid analysis. The methodology acquires at least one fluid sample at a respective measurement station and performs downhole fluid analysis to measure properties of the fluid sample, including concentration of a plurality of high molecular weight components. For each of a plurality of type classes corresponding to different subsets of a predetermined set of high molecular weight components, a model is used to predict the concentration of the components of the given type class for the plurality of measurement stations. The predicted concentrations of the high molecular weight components for the plurality of type classes are then compared with corresponding concentrations measured by downhole fluid analysis for the plurality of measurement stations to identify the best matching type class. The results of the comparison are used for reservoir analysis.

(65) **Prior Publication Data**
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23 Claims, 9 Drawing Sheets

