



US 20090064693A1

(19) **United States**

(12) **Patent Application Publication**  
**Matsiev et al.**

(10) **Pub. No.: US 2009/0064693 A1**  
(43) **Pub. Date: Mar. 12, 2009**

(54) **ENVIRONMENTAL CONTROL SYSTEM  
FLUID SENSING SYSTEM AND METHOD**

(60) Provisional application No. 60/505,943, filed on Sep. 25, 2003.

(76) Inventors: **Leonid Matsiev**, San Jose, CA (US); **Oleg Kolosov**, San Jose, CA (US); **Mark D. Urich**, Redwood City, CA (US); **William Rust**, Mountain View, CA (US); **John M. Feland, III**, Palo Alto, CA (US); **John F. Varni**, Los Gatos, CA (US); **Blake Walker**, Pleasanton, CA (US)

(30) **Foreign Application Priority Data**  
Oct. 17, 2003 (WO) ..... PTC/US2003/032983

**Publication Classification**

(51) **Int. Cl.**  
*F25B 49/00* (2006.01)  
*G01N 29/036* (2006.01)  
*G01N 11/00* (2006.01)  
*G01N 9/00* (2006.01)  
*G01R 27/00* (2006.01)  
(52) **U.S. Cl.** ..... 62/125; 73/61.49; 73/24.01; 73/54.41; 73/32 A; 73/64.53; 324/722

Correspondence Address:  
**SENNIGER POWERS LLP**  
**100 NORTH BROADWAY, 17TH FLOOR**  
**ST LOUIS, MO 63102 (US)**

(57) **ABSTRACT**

(21) Appl. No.: **12/059,801**  
(22) Filed: **Mar. 31, 2008**

A sensor system and method for analyzing a fluid contained within an environmental control system, comprising the steps of providing a system including a passage for containing a thermal change fluid; placing a sensor including a mechanical resonator in the passage; operating the resonator to have at least a portion thereof translate through the fluid; and monitoring the response of the resonator to the fluid in the passage. A preferred sensor includes a tuning fork resonator.

**Related U.S. Application Data**

(63) Continuation of application No. 10/951,252, filed on Sep. 27, 2004, now Pat. No. 7,350,367.

