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(54) **PAIRWISE SYMMETRY DECOMPOSITION METHOD FOR GENERALIZED COVARIANCE ANALYSIS**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,046,179 A *	9/1991	Uomori et al.	....	708/422
5,257,364 A *	10/1993	Melamed et al.	....	708/421
7,320,014 B2 *	1/2008	Letts	....	708/422
7,346,593 B2 *	3/2008	Takeuchi et al.	....	708/446
2005/0002054 A1 *	1/2005	Shoji et al.	....	358/1.14
2005/0050129 A1 *	3/2005	Kamatani et al.	....	708/422
2007/0005297 A1 *	1/2007	Beresniewicz et al.	......	702/181

* cited by examiner

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(57) **ABSTRACT**

The present invention provides a system for evaluating a correlation between a plurality of time-series data. The system includes a calculating section which calculates characteristic quantities indicating symmetry of a diagram drawn by a graph, on which data values included in the plurality of time-series data are plotted in a multidimensional space in which each coordinate axis represents the data value of each time-series data; and an evaluating section which evaluates the correlation between the plurality of time-series data, based on the calculated characteristic quantities.

3 Claims, 9 Drawing Sheets