

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Xiang Zhang**

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报告题目:

**A System of Generalized Sylvester
Quaternion Matrix Equations and
Its Applications**

邀请人: 白中治 研究员

报告时间: **2015年9月5日 (周六)**

上午 9:30~10:30

报告地点: 科技综合楼三层

311 报告厅

Abstract:

Let $H^{m \times n}$ be the set of all $m \times n$ matrices over the real quaternion algebra. We call that $A \in H^{m \times n}$ is η -Hermitian if $A = -\eta A^* \eta$, $\eta \in \{i, j, k\}$, where i, j, k are the quaternion units. Denote $A^{\eta*} = -\eta A^* \eta$. In this talk, we derive some necessary and sufficient conditions for the solvability to the system of generalized Sylvester real quaternion matrix equations $A_i X_i + Y_i B_i + C_i Z D_i = E_i$, ($i=1, 2$), and give an expression of the general solution to the above mentioned system. As applications, we give some solvability conditions and general solution for the generalized Sylvester real quaternion matrix equation $A_i X + Y B_i + C_i Z D_i = E_i$, where Z is required to be η -Hermitian. We also present some solvability conditions and general solution for the system of real quaternion matrix equations involving η -Hermicity $A_i X_i + (A_i X_i)^{\eta*} + B_i Y B_i^{\eta*} = C_i$, ($i=1, 2$) where Y is required to be η -Hermitian. Our results include the main result of [Q.-W. Wang, Z.-H. He, Automatica 49 (2013) 2713-2719] and other well-known results as special cases.

欢迎大家参加！