

# 先端科学技術研究科 修士論文要旨

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| 所属研究室<br>(主指導教員)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ネットワークシステム学<br>(岡田 実 (教授))                                                                            |     |              |
| 学籍番号                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1911104                                                                                               | 提出日 | 令和 3年 1月 25日 |
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| 論文題目                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Series Resonance Circuit Design for 2×2 MIMO Inductive Power Transfer<br>2×2 MIMO ワイヤレス給電のための直列共振回路設計 |     |              |
| 要旨                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                       |     |              |
| <p>Inductive Power Transfer(IPT) is a wireless power transfer technique, and various electronic devices, such as electric vehicles and electric toothbrushes, employ it. In practice, these applications require constant voltage or constant current characteristics. Furthermore, Multiple IPTs needs to be operated simultaneously in close locations to accommodate many devices. There are several types of research on multiple-input multiple-output (MIMO) IPT to fulfill the requirements. The previous study proposed a MIMO IPT system composed of two constant voltage IPT pairs operating at the same frequency in close vicinity. However, it is sensitive to the variation in the distance between transmitter and receiver. To solve this problem, we propose a Series Resonance Circuit for Constant Current/Constant Voltage 2-by-2 MIMO IPT with constant current or voltage characteristics. In this paper, I will present the proposed compensation circuit design procedure and show that the proposed scheme is robust to the distance variation.</p> |                                                                                                       |     |              |