# 第152回スポーツサイエンス研究会

**SGU（文部科学省スーパーグローバル大学創成支援**
**早稲田大学スポーツ科学学術院　健康スポーツ科学モデル拠点）協賛**

日時　2015年12月1日（火）　16:30より

場所　早稲田大学　所沢キャンパス　100号館5F　第一会議室

**演題**

## Coordination dynamics of whole-body rhythmic sensorimotor synchronization: A comparison study of street dancers and non-dancers

Dr. Akito Miura
(Waseda University, Japan)

I applied dynamical systems approach to basic street dance coordination pattern, and revealed two distinguishable coordination modes. Participants (skilled street dancers and novice controls) were instructed to synchronize repetitive knee-bending movements in stance to a metronome beat over wide range of movement frequencies in two coordination modes: down-on-the-beat (knee flexion synchronized with the beat) and up-on-the-beat (knee extension synchronized with the beat). When they were instructed to perform up-on-the-beat, both groups showed unintentional phase transition to down-on-the-beat at higher movement frequencies. In contrast, when they were instructed to perform down-on-the-beat, phase transition to up-on-the-beat was never observed. The critical frequency where phase transition from up-on-the-beat to down-on-the-beat was significantly higher in dancers than in non-dancers. In addition, when the participants were instructed to resist the unintentional phase transition, only dancers were able to do it. These findings suggest that rhythmic whole-body sensorimotor synchronization obeys principles of self-organization, and that skilled dancers were able to modify such pre-existing tendencies to achieve artistic expressions.

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