



Contribution ID: 38

Type: **Poster Presentation**

Wave Instability of Intercellular Ca(2+) Oscillations

Wednesday, 9 July 2014 17:10 (1h 50m)

Abstract content
 (Max 300 words)
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Modulational instability is exclusively addressed in a minimal model for calcium oscillations in cells. The cells are considered to be coupled through paracrine signaling. The endoplasmic reticulum and cytosolic Ca (2+) equations are reduced to a single differential-difference amplitude equation. The linear stability analysis of a plane wave is performed on the latter and the paracrine coupling parameter is shown to deeply influence the instability features. Our analytical expectations are confirmed by numerical simulations, as instability regions give rise to unstable Ca(2+)-wave patterns. We also discuss the possibility of perfect intercellular communication via the activation of modulational instability.

Apply to be considered for a student award (Yes / No)?

N/A

Level for award (Hons, MSc, PhD)?

N/A

Main supervisor (name and email) and his / her institution

Not applicable

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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Session Classification: Poster2

Track Classification: Track F - Applied Physics