

MAHIDOL UNIVERSITY INTERNATIONAL COLLEGE  
APPLIED MATHEMATICS SEMINAR

Room 1417, Building 1

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*The non-existence of convex configuration for a given set  
of vertex-norm in two-dimensional space*

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**Title:** The non-existence of convex configuration for a given set of vertex-norm in two-dimensional space

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**Institution:** Department of Mathematics and Computer Science, Faculty of Science, Chulalongkorn University

**Abstract:** Given a set of vertex-norm, or distances from the origin, in two-dimensional space, there does not always exist a convex configuration, or convex polygon, whose vertices satisfy the vertex-norm. In this research, we provide the necessary and sufficient conditions, based on the angles spanned by the polygon around the origin, for the existence of such convex configuration. General strategies for constructing a convex configuration satisfying a given vertex-norm set as well as examples of vertex-norm sets for which no such convex configuration exists are also illustrated.