

Sep 17th, 12:00 AM - Sep 19th, 12:00 AM

Hidden in Plane Sight: the Extraordinary Vision of Ernest Irving Freese

Greg Frederickson

Purdue University, gnf@cs.purdue.edu

Follow this and additional works at: <https://docs.lib.purdue.edu/iutam>



Part of the [Engineering Commons](#)

Recommended Citation

Frederickson, G. (2018). Hidden in Plane Sight: the Extraordinary Vision of Ernest Irving Freese. In T. Siegmund & F. Barthelat (Eds.) *Proceedings of the IUTAM Symposium Architected Materials Mechanics, September 17-19, 2018*, Chicago, IL: Purdue University Libraries Scholarly Publishing Services, 2018. <https://docs.lib.purdue.edu/iutam/presentations/abstracts/25>

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

IUTAM Symposium Architected Material Mechanics,
T. Siegmund, F. Barthelat, eds
September 17-19, 2018, Chicago, IL, USA, , Chicago, IL, USA

Hidden in Plane Sight: the Extraordinary Vision of Ernest Irving Freese

Greg N. Frederickson
Department of Computer Science, Purdue University, West Lafayette, IN 47907,
gnf@cs.purdue.edu

KEYWORDS:

Geometric dissections, Plane tessellations, Structure of regular polygons, Hingeability.

A geometric dissection is a cutting of a geometric figure into pieces that you can rearrange to form another figure. Dissections have had a surprisingly rich history, reaching back to Islamic mathematicians a millennium ago and Greek mathematicians more than two millennia ago. Following the death of Los Angeles architect Ernest Irving Freese in 1957, his precious 200-page manuscript, chock-full of gorgeous geometric dissections, “disappeared” and wasn't recovered for more than four decades. Hidden within many of its dissections are remarkable uses of plane tessellations, nifty instantiations of mathematical identities, amazing forays into the structure of regular polygons, and spectacular hingsings of the dissection pieces. Based on the speaker's recent book [1], this talk will illuminate a number of Freese's lovely insights, and outgrowths.

Reference

[1] Frederickson, G.N., 2017. Ernest Irving Freese's `Geometric Transformations': the Man, the Manuscript, the Magnificent Dissections. *World Scientific: New Jersey*.