

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR****Online**

Title: The boundary between the initiation and the propagation phase of fatigue and the explanation of Threshold region

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Date: 12 April, 2022 (Tuesday)

Time: 10:00 a.m. (Hong Kong Time)

Zoom meeting: 1) Link to join the meeting:

<https://zoom.us/j/94935425559?pwd=eXdzdWN5aXprSWFmaWtWRXcyL2hGZz09>

2) Meeting ID: 949 3542 5559

3) Password: 565319

Abstract:

In fatigue, the boundary between the crack initiation and propagation phases needs to be resolved. The Manson-Coffin equation and the Paris equation are the two fundamental equations, which are used in crack-free and cracked structures, respectively. By transforming these two equations, a relatively reasonable quantitative boundary has been proposed.

When the same idea was used in a cracked structure, the crack growth rate has been calculated by the Manson-Coffin equation containing two parameters—the magnitude of stress intensity factor and the stress ratio. Through the analysis of stress ratio and residual stress, a plausible meaning of the threshold region is explained. Pre-overload experiments show that overload is the cause of the threshold region.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. M.X. Huang at 3917 7906.

Research area: Advanced Material