Stress Analysis in Elastically Similar Complete Contacts

by

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Dissertation Report submitted in partial fulfilment of
the requirements for the
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CERTIFICATION OF APPROVAL

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Approved by,

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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

AUGUST 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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MUHAMMAD ZAHHAR BIN HAMIZER

ABSTRACT

Contact pressure, contact frictional stress, normal and shear stress that are created by sliding a square block on an elastically similar half-plane have been studied. The areas of high concentration of stress have been determined by the aid of finite element analysis computer software, ANSYS. The result achieved by using ANSYS simulation will provide a clearer view on how the stress distribution looks like at certain important regions, including at the contacting surface, at the edge of the contact and also at subsurface. Some of the effects of the stress have been discussed. The stress that occurs from sliding may lead to a component's failure. The most critical zones of the sliding contact have been shown with the change of coefficient of friction.

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