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**Research on metal fatigue of the University Of Peradeniya: The state of the art**

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Since the initiation of research on fatigue of metals in the 1840s, many studies were carried out globally to understand the fatigue failure mechanisms, assess the fatigue damage and determine the fatigue life of structures and components. The Department of Civil Engineering, Faculty of Engineering of the University of Peradeniya (UOP), Sri Lanka started research on fatigue assessment of existing iron and steel bridges in the 1990s.

The present study is a review of the major research of the UOP on metal fatigue. The review shows that the studies of the UOP cover high cycle and gigacycle fatigue failures that occurred due to service loading conditions, ultra low and low cycle fatigue failures due to extreme loading events, fatigue damage accumulation methods and fatigue damage prediction models. The findings of the continuous research of the UOP on metal fatigue were gathered to introduce the "State of the Art Fatigue Damage Assessment Method" of the UOP.

Keywords: Metal fatigue, iron and steel bridges, cyclic loading, damage assessment