

1                                   **Structural Restoration of Mireuksaji Stone Pagoda**

2                                   – South Korea’s Oldest and Largest Stone Pagoda

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4                                   by Thomas Kang

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6                                   **Keynote Speech Paper Abstract**

7 Mireuksaji stone pagoda built in 660~640 years, the only remaining building in Mireuksaji  
8 temple and the oldest and largest stone pagoda in South Korea, has existed for nearly 1400  
9 years. The Mireuksaji stone pagoda was partially collapsed. Owing to the historical, cultural  
10 and architectural values of the heritage, which followed the style of wooden buildings of that  
11 era, it is necessary to preserve and even restore it. First, the cause of collapse was examined  
12 for structural restoration plans. For this, material characteristics were investigated. Next, a 3D  
13 numerical analysis of discontinuous modeling based on the distinct element method was  
14 performed, followed by a series of sensitivity analyses for forensic purposes. Additionally,  
15 experimental studies of pinning renovation techniques used to reattach broken granite stones  
16 were carried out. The 20-year restoration has been finally completed in 2019 (**Fig. 1**).



18                                   **Fig. 1** – Restored Mireuksaji stone pagoda in Iksan, South Korea (Photo by T. Kang)