

## Temperature distributions of concrete macrocracks with different crack shapes by passive method

Arum Jang<sup>1)</sup>, Sanggi Jeong<sup>2)</sup>, Min Jae Park<sup>3)</sup>, Thomas H.-K.Kang<sup>4)</sup> and  
\*Young K. Ju<sup>5)</sup>

<sup>1), 2), 3), 5)</sup> School of Civil, Environmental, and Architectural Engineering, Korea  
University, 145 Anam-ro, Seongbuk-gu, Seoul 02841, South Korea

<sup>4)</sup> Department of Architecture and Architectural Engineering, Seoul National University,  
1 Gwanak-ro, Gwanak-gu, Seoul, 08826, South Korea

<sup>5)</sup> [tallsite@korea.ac.kr](mailto:tallsite@korea.ac.kr)

### ABSTRACT

Cracks are typical concrete defects. A defect detection technique using thermal imaging techniques is proposed to detect defects in a contactless manner. The shape of the crack depends on the temperature deviation detected by the thermal camera, as shown in Fig. 1. Analyze the relationship with temperature distributions based on various parameters.

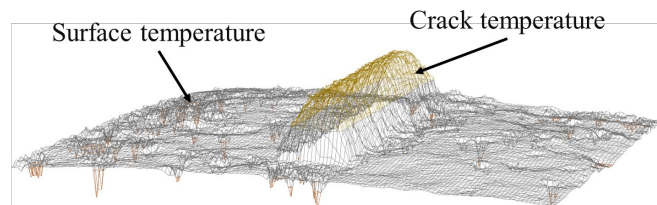


Fig. 1 Data visualization of temperature distributions

### REFERENCES

Omar, T., Nehdi, M. L., & Zayed, T. (2018). "Infrared thermography model for automated detection of delamination in RC bridge decks". *Construction and Building Materials*, **168**, 313-327.

---

<sup>1)</sup> Graduate Ph.D. Student

<sup>2)</sup> Graduate Integrated Master-Doctoral Student

<sup>3)</sup> Research Professor, Ph.D.

<sup>4)</sup> Professor, Ph.D.

<sup>5)</sup> Professor, Ph.D.

Bae, J., Jang, A., Park, M.J., Lee, J.H. and Ju, Y.K. (2022). "Assessment of concrete macrocrack depth using infrared thermography". *Steel Compos. Struct.*, **43**(4), 501-509.