Calculating Safety Level in Real Time: An extension of STPA

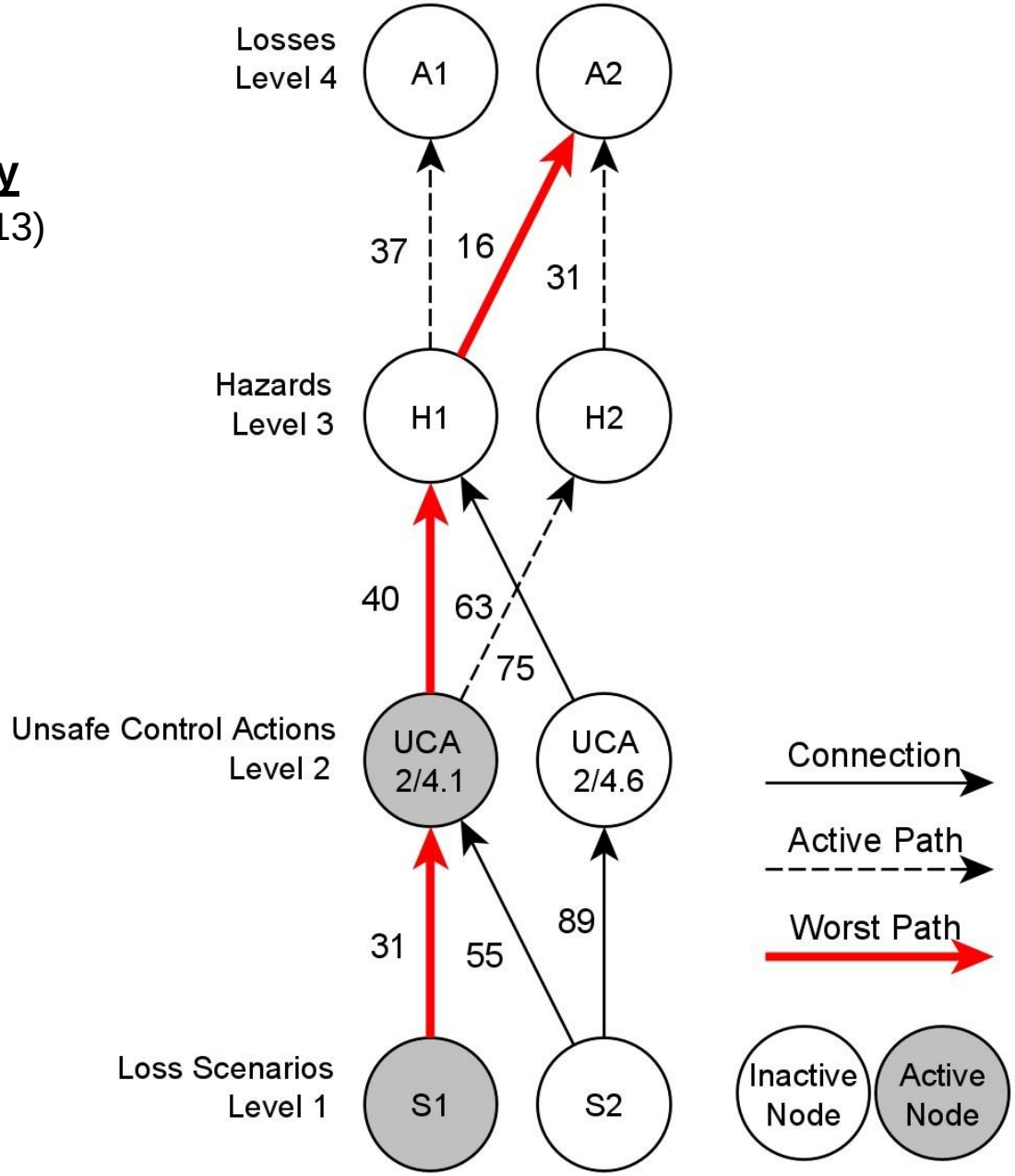
The Problem: A method that can measure what the **actual safety level** of a system is, **at any moment in time** and at **any given context,** is yet to be proposed. (Knegtering & Pasman, 2013)

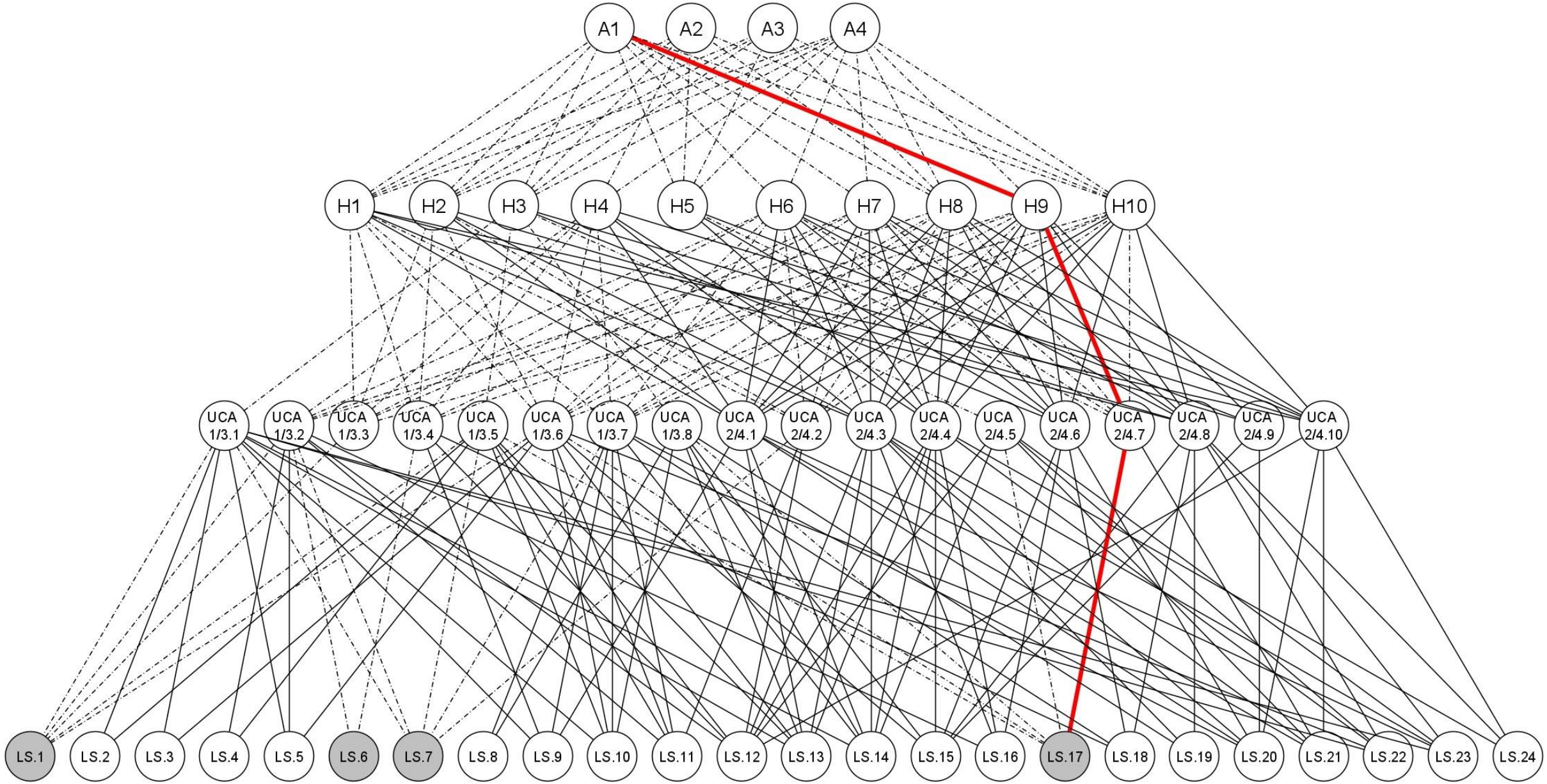
The Solution:

1. Apply STPA.
2. A graphical representation of STPA analysis.
3. Populate graph with time information.
4. Real-time data feed about system state.
5. Calculate Safety Level.

Safety Level: The most detrimental to safety path towards a possible loss, according to the time remaining until the loss occurs.

Time Remaining Until the Accident = 56 minutes

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A4
H1
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H6
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H9
H10
UCA 1/3.1
UCA 1/3.2
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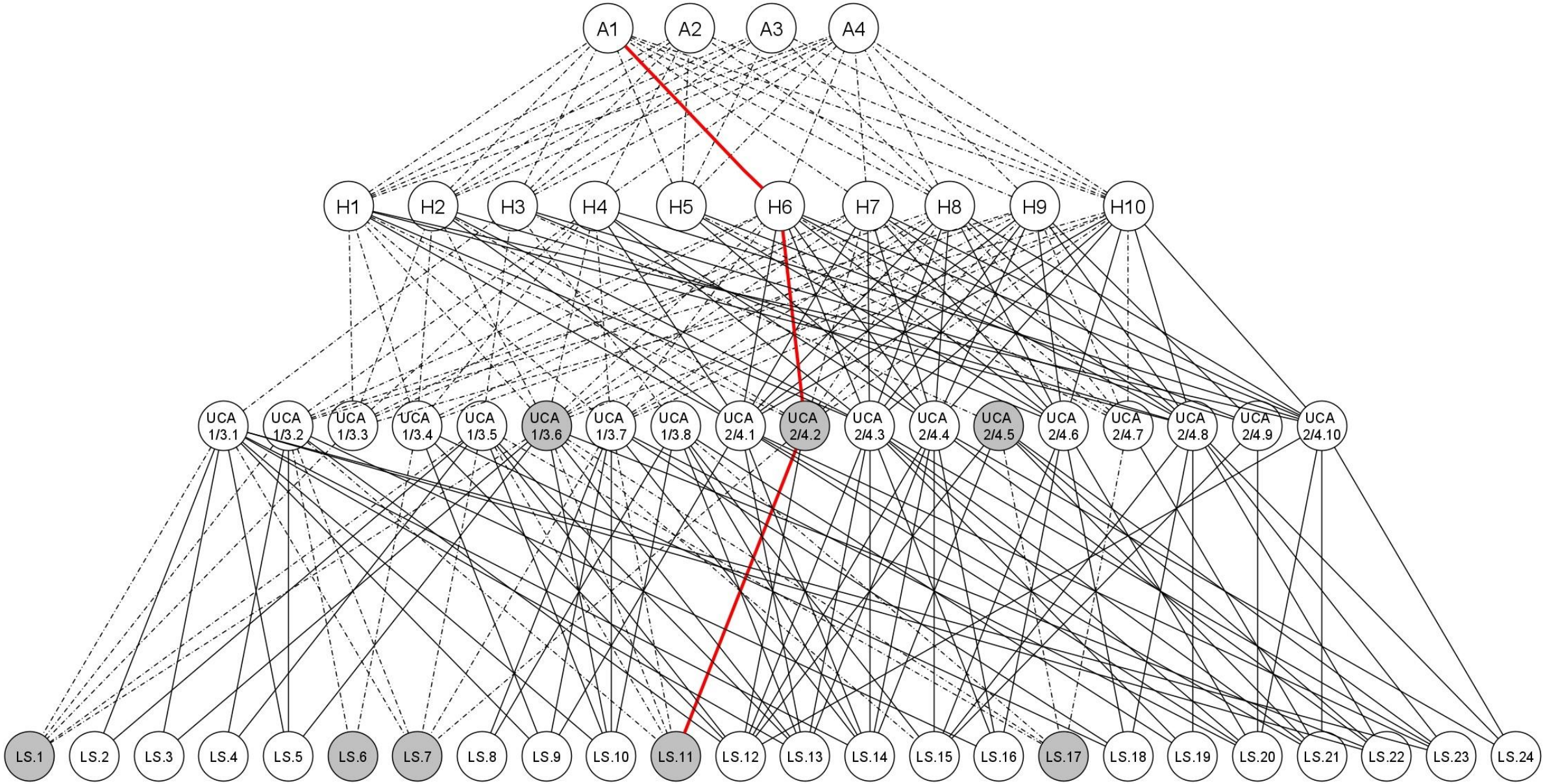
LS.24

t = 0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t = 1000 hours

Thank you, any questions?

ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ | DEMOCRITUS UNIVERSITY OF THRACE

Published work:

- Zeleskidis A., Dokas I. M., Papadopoulos B. (2019) A Novel Real-Time Safety Level Calculation Approach based on STPA, *in International Cross-Industry Safety Conference (ICSC) and International Symposium on Aircraft Technology, MRO & Operations (ISATECH).* Amsterdam 9-11 October, 2019.
- Dokas I. M., Zeleskidis A., Papadopoulos B. (2018) DYNAMIC DETERMINATION AND CALCULATION OF THE SAFETY LEVEL IN MAJOR-HAZARD ACCIDENT SYSTEMS: A PROPOSED MATHEMATICAL MODEL, *in SafeKozani 2018 - 5th International Conference on Civil Protection & New Technology.* Kozani 31.10-3.11 2018, pp. 262-273.

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