



KJELLER
VINDTEKNIKK

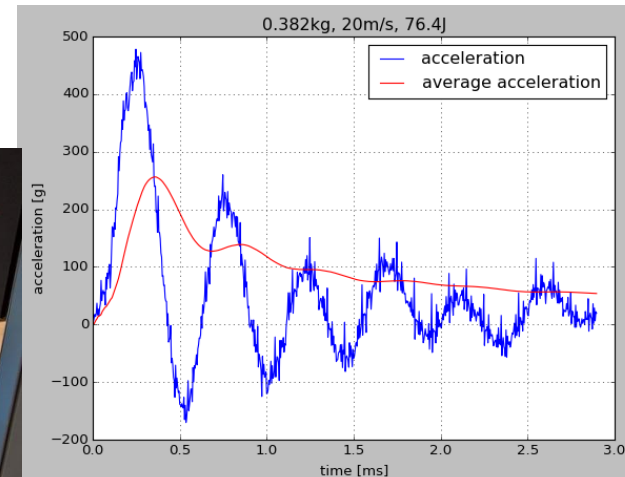
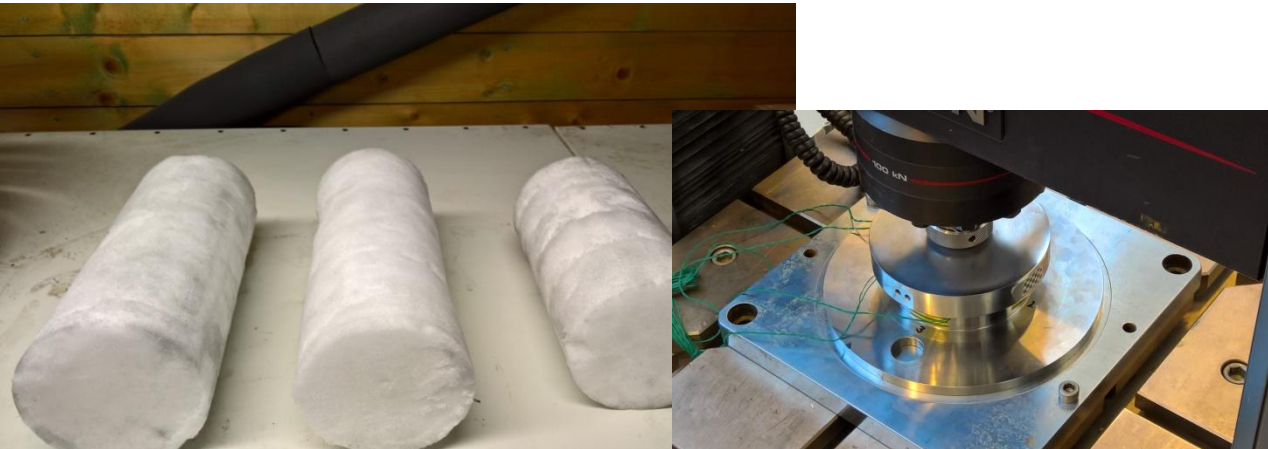
Crash test of a potentially dangerous frozen wet-snow cylinder

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Providing evidence that the risk of injury is lower for rime than glaze ice

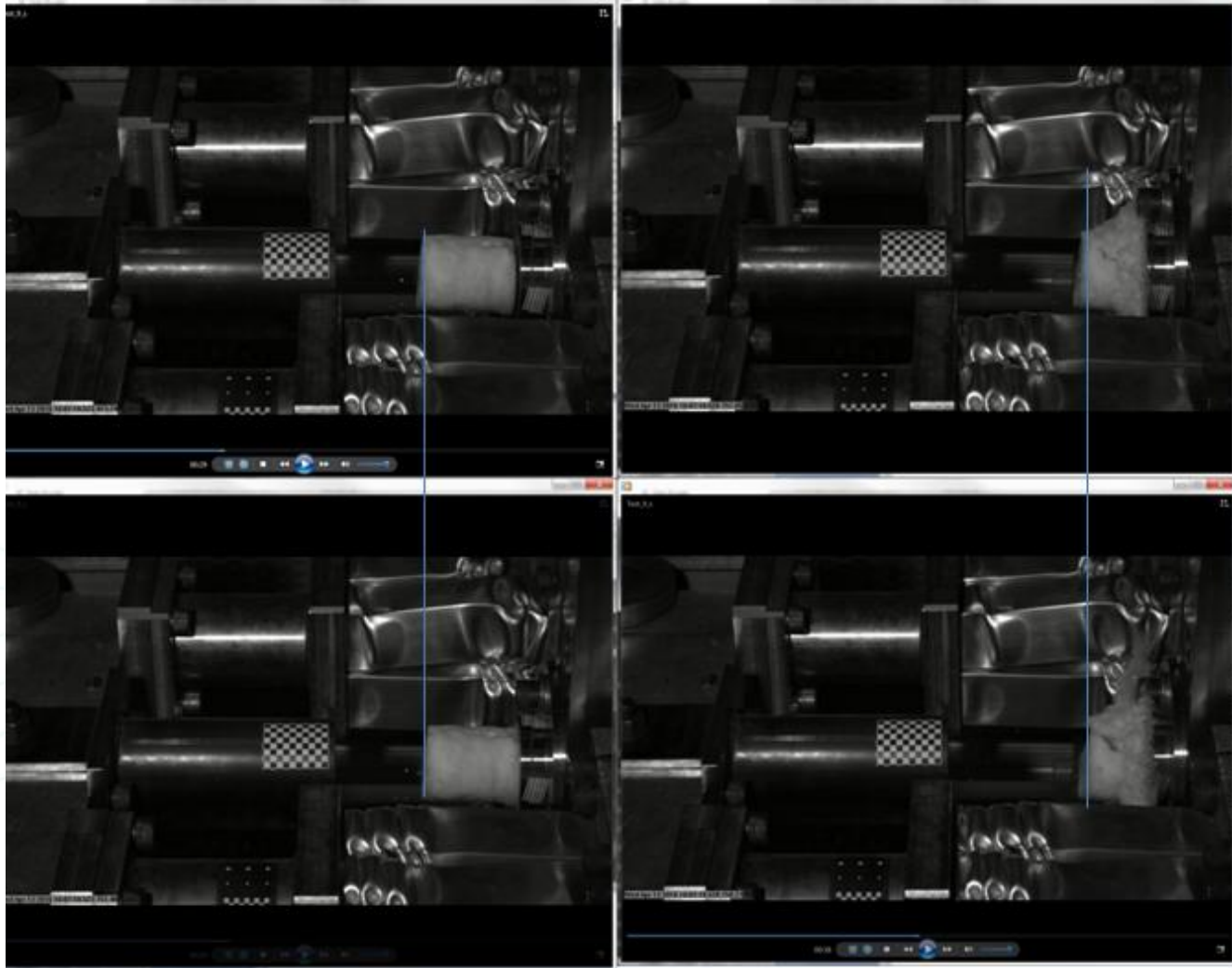
- Rime ice impact of 76.6 J not threatening to life according to Wayne State Tolerance Curve (head injury)
- 400 g of rime ice with density 500 kg/m³ impacting at 20 m/s



The Kicking Machine

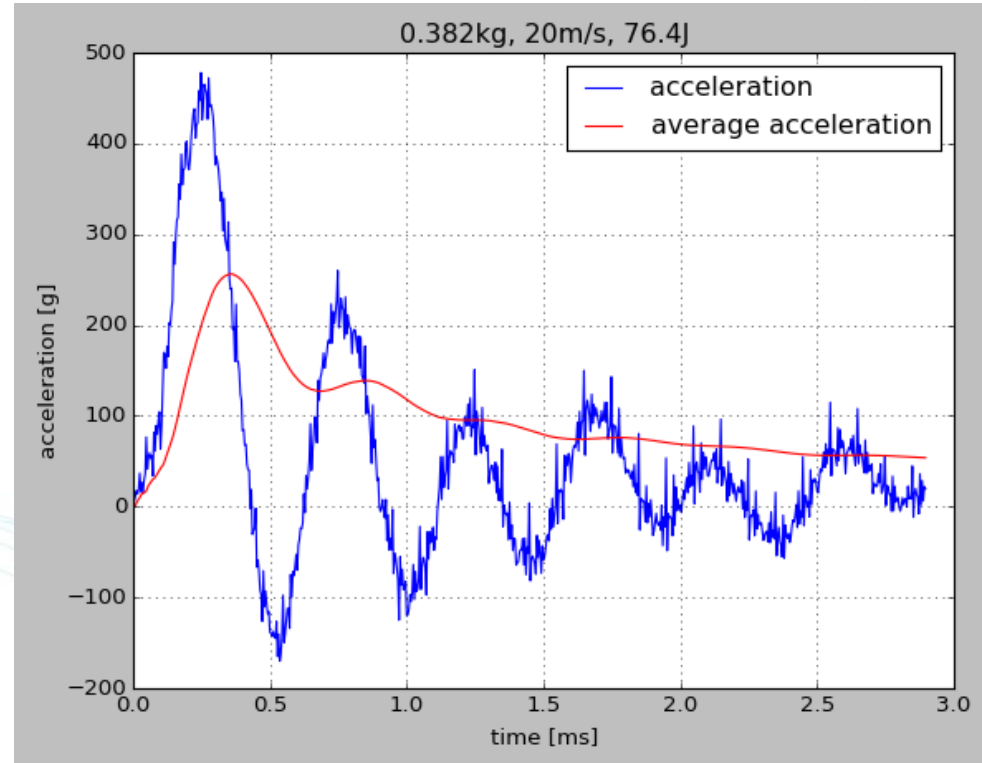


3 ms duration of impact



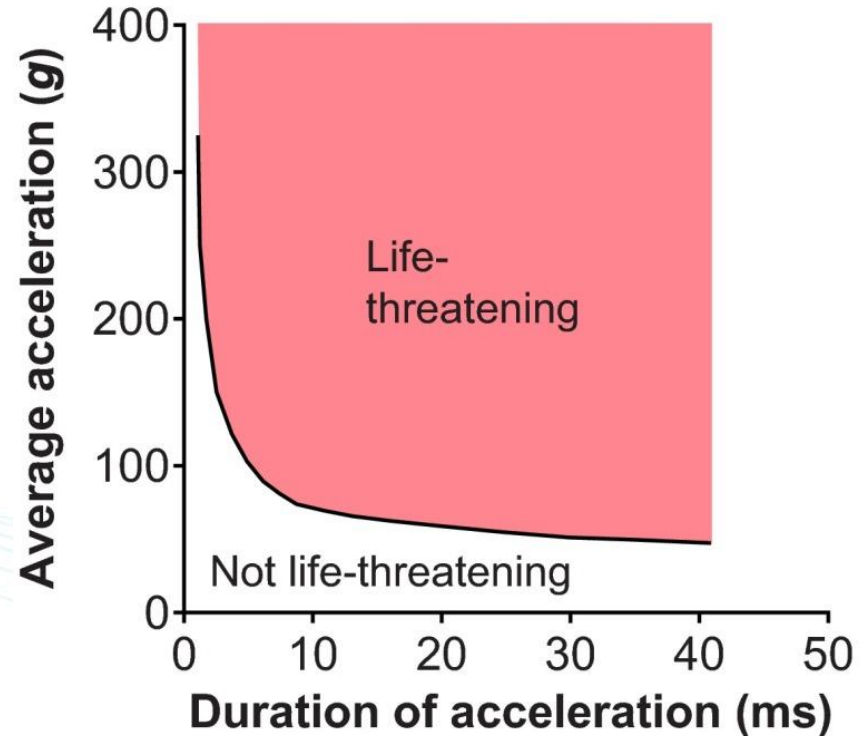
HIC below 700 is the crash test acceptance criteria for cars (584,317)

- Head Injury Criterion (HIC) is based on the timeseries of a/de-celeration for center of mass point of a head.
- 377 g over 0.22 ms
- 85 g over 1.26 ms
- 200 g \leftrightarrow 9.8 kN



The test suggests that

- There is less than a 5 % chance of a life threatening injury
- However, 60-80 % chance of concussion



Thank you for your attention



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