E. Nematollahi, S. Zare, F. Ghorbani, **A.** Ghasemi and S. Banisi

An investigation of feed box shape effects on cone crusher performance by DEM

Kashigar Mineral Processing Research Center (KMPC)

Shahid Bahonar University of Kerman, Iran







Crusher size: 7 ft. short head Throughput: **531 t/h** Crusher setting: 12.7 mm Feed size: 76 mm Product size: 38 mm

High power draw fluctuation



□ Non-uniform and high wear rate



□ Cracks and breakage





□ Mechanical issues





The Sarcheshmeh cone crushers



Observation: Non-uniform feeding regime on crusher plate



What factors cause power draw fluctuations?

- > Ore hardness
- > Feed rate
- Feeding regime
- Crusher setting



Importance of feeding regime











Simulation results

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Simulation results

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Industrial implementation



Results

Reduction of power draw variance by 26%



Results (cont'd)

Significant increase in the crushers' throughputs



Results (cont'd)

□ Finer and narrower product size distribution



Results (cont'd)

Uniform and lower wear rate of bowl liner







Conclusion

DEM could bring real improvement to the

plant other than fancy simulation graphs!



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