

# SET OPTIMIZATION AND APPLICATIONS

PRADEEP KUMAR SHARMA

*Department of Mathematics, University of Delhi, New Delhi, India*

In this talk, we discuss set optimization problems and their applications. Specifically, we discuss different kinds of set order relations which are used to compare the objective values of set-valued maps and play a key role to study set optimization problems. The solution concepts of set optimization problems and their relationships with respect to different kinds of set order relations will be discussed. We also discuss existence of optimal solutions of set optimization problems. At last, we discuss applications of set optimization problems to game theory with uncertainty and radiotherapy treatment.

## REFERENCES

- [1] Ansari, Q.H., Sharma, P.K.: Set Order Relations, Set Optimization, and Ekeland's Variational Principle. In: Laha V., Maréchal P., Mishra S.K. (eds) Optimization, Variational Analysis and Applications. IFSOVAA 2020. Springer Proceedings in Mathematics & Statistics, vol 355, pp. 103-165. Springer, Singapore (2021).
- [2] Khan, A.A., Tammer, C. and Zălinescu, C.: *Set-Valued Optimization: An Introduction with Applications*. Springer, Berlin (2015).