

**SET THEORETIC ASPECTS OF THE SPACE OF
ULTRAFILTERS $\beta\mathbb{N}$**

BOBAN VELIČKOVIĆ

The Čech-Stone compactification of the natural numbers, $\beta\mathbb{N}$, plays an important role in topology, set theory, dynamics, additive combinatorics and other areas of mathematics. It is a very rich structure which has been studied intensively over the years and is quite well understood by now. Nevertheless, some open problems remain. While many questions about $\beta\mathbb{N}$ are independent of the standard axioms of set theory, some tools have been developed to prove theorems about it in ZFC alone. In this talk we will survey some aspects of $\beta\mathbb{N}$:

- construction of special ultrafilters on the set of natural numbers, such as P-points, rapid ultrafilters, selective ultrafilters and others;
- the Rudin-Keisler ordering on $\beta\mathbb{N}$;
- global properties and autohomeomorphisms of $\beta\mathbb{N}$.

We will also discuss some open problems and directions for future research.

EQUIPE DE LOGIQUE, UNIVERSITÉ DE PARIS 7, 2 PLACE JUSSIEU, 75251
PARIS, FRANCE.

E-mail address: boban@logique.jussieu.fr