

## ANTICHAIN NUMBERS OF $\mathcal{P}(\omega)/\mathcal{J}$

ABSTRACT. For an ideal  $\mathcal{J}$  on  $\omega$ , the antichain number of the algebra  $\mathcal{P}(\omega)/\mathcal{J}$  is defined as

$$\mathfrak{a}(\mathcal{J}) = \min\{|\mathcal{A}| : \mathcal{A} \subseteq \mathcal{P}(\omega)/\mathcal{J} \text{ is an unctbl maximal antichain}\}$$

For a wide class of definable ideals we will show that  $\mathfrak{a}(\mathcal{J})$  is greater equal then  $\min\{\mathfrak{b}, \text{cov}_+^*(\mathcal{J})\}$  where  $\text{cov}_+^*(\mathcal{J})$  is defined as the smallest number of sets from  $\mathcal{J}$  needed to infinitely intersect every  $\mathcal{J}$ -positive set. The class contains all  $F_\sigma$ -ideals, all analytic  $P$ -ideals, nwd,  $\mathcal{ED}$  and many other examples. We will discuss the values of  $\text{cov}_+^*(\mathcal{J})$  for these ideals.