The number of all isormorphic classes of atomic subfields in the power set of an infinite set*

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Let X be an infinite set, the power set of X is denoted by $P(X)$. $\hat{F}=\{G:$ G and F are isomorphic in the sense of Boolean algebra$\}$, $C=\{\hat{F}: F$ is an atomic subfield in $P(X)\}$. Define C_1 ($\subsetneqq C$) is an incomparable class if $(\forall \hat{F}_1, \hat{F}_2 \in C_1)$ $(F_1 \neq F_2 \to F_1$ and F_2 are incomparable$)$, then $|C| = 2^{2^{|X|}} = \max\{|C_1|\}$.

In proof of this result, the AC and GCH are used.

The sense of "isomorphism" in [2] is understood as "$\exists\varphi$ (φ is a bejection on X and $G=\{\varphi[Y]: Y\in F\}$)".

The result of this research note is largely stronger than [2] (The second part of theorem 5, in [2]).

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References

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[2] Yang An-zhou et al., Cardinal numbers of some sets (II), Journal of the Beijing Polytechnic University, Vol. 8., No. 3. (Sept. 1982), p. 132.

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