A LOWER BOUND FOR $K_XL$
OF QUASI-POLARIZED SURFACES $(X, L)$
WITH NON-NEGATIVE KODAIRA DIMENSION

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ABSTRACT. Let $X$ be a smooth projective surface over the complex number field and let $L$ be a nef-big divisor on $X$. Here we consider the following conjecture; If the Kodaira dimension $\kappa(X) \geq 0$, then $K_XL \geq 2q(X) - 4$, where $q(X)$ is the irregularity of $X$. In this paper, we prove that this conjecture is true if (1) the case in which $\kappa(X) = 0$ or 1, (2) the case in which $\kappa(X) = 2$ and $h^0(L) \geq 2$, or (3) the case in which $\kappa(X) = 2$, $X$ is minimal, $h^0(L) = 1$, and $L$ satisfies some conditions.

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