Let $X \subset \mathbb{P}^n$ be a smooth projective variety. The authors consider the embeddings $I_1 : D(X \times_{\mathbb{P}^n} T) \hookrightarrow D(H)$ and $I_2 : D(X^2 \times_{\mathbb{P}^n} T^2) \hookrightarrow D(H)$. They show that the pull-back $I_1^* : D(H) \to D(X \times_{\mathbb{P}^n} T)$ is fully faithful on some subcategories coming from the Lefschetz decompositions of $D(X)$ and $D(T)$. The same result holds for $I_2^* : D(H) \to D(X^2 \times_{\mathbb{P}^n} T^2)$, with the appropriate change of notation. The Lefschetz decompositions are not assumed to be rectangular. Finally, they prove that $I_2^* I_1^*$ gives the isomorphism between the principal parts of $D(X \times_{\mathbb{P}^n} T)$ and $D(X^2 \times_{\mathbb{P}^n} T^2)$.

The underlying idea of the proof is to consider a decomposition of the subcategory $D(X \times_{\mathbb{P}^n} T) \subset D(H)$, where the pieces are nicely ordered in a “chess board”, and study the relations between each piece and the others pieces of the board.

Reviewer: Giosuè Muratore (Roma)

MSC:

- 14F08 Derived categories of sheaves, dg categories, and related constructions in algebraic geometry
- 18G80 Derived categories, triangulated categories

Keywords:

categorification; Plücker formula; homological projective duality

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