Harui, Takeshi; **Komeda, Jiryo**; **Ohbuchi, Akira**
Double coverings between smooth plane curves. (English) Zbl 1145.14027
Kodai Math. J. 31, No. 2, 257-262 (2008).

In this paper the authors classify the pairs of smooth plane curves (C, C') such that there exists a covering $\pi : C \to C'$ of degree 2. The main result is as follows.

Theorem. Let C and C' be two smooth plane curves of degree d and d', respectively. Then there exists no double covering from C to C', except for the following cases:

(i) C' is rational ($d' \leq 2$) and C is rational or elliptic ($d \leq 3$);

(ii) C and C' are elliptic ($d = d' = 3$);

(iii) C' is elliptic and C is a bielliptic plane quartic ($d' = 3$, $d = 4$).

In particular, no smooth plane curve can be a double covering of a smooth plane curve of degree greater than 3.

Reviewer: Cicero Carvalho (Uberlandia)

MSC:

14H51 Special divisors on curves (gonality, Brill-Noether theory)
14H45 Special algebraic curves and curves of low genus

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