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Kashyap Rajeevsarathy* (kashyap@iiserbhopal.ac.in), IISER Bhopal, ITI (Gas Rahat) Building, Govindapura, Bhopal, MP 462023, India. *Bounds of on the degrees of roots of Dehn twists.*

Let F be a closed orientable surface of genus $g \geq 2$ and C be a simple closed curve in F . Let t_C denote a left handed Dehn twist about C . When C is a nonseparating curve, D. Margalit and S. Schleimer showed the existence of such roots by finding elegant examples of roots of t_C whose degree is $2g + 1$ on a surface of genus $g + 1$. This motivated an earlier collaborative work with D. McCullough in which we derived conditions for the existence of a root of degree n . We also showed that Margalit-Schleimer roots achieve the maximum value of n among all the roots for a given genus. Suppose that C is a separating curve in F . First, we derive algebraic conditions for the existence of roots in $\text{Mod}(F)$ of the Dehn twist t_C about C . Finally, we show that if n is the degree of a root, then $n \leq 4g^2 + 2g$, and for $g \geq 10$, $n \leq \frac{16}{5}g^2 + 12g + \frac{45}{4}$. (Received November 15, 2011)