

TABLE I  
COMPARISON OF EQUAL REACHING LAW AND NOVEL REACHING LAW

Descriptions	Equal reaching law	Novel reaching law
reaching law	$\dot{s} = -k_1 \cdot \text{sgn}(s)$	$\dot{s} = -eq(x_1, s)\text{sgn}(s)$ $eq(x_1, s) = \frac{k}{\epsilon + (1 + \frac{1}{ x_1 } - \epsilon)e^{-\delta s }}$
a faster reaching time	$k_1$	$\frac{k}{\epsilon}$
chattering		$eq(x_1, s)$ gradually decreases to zero to suppress the chattering
reaching time t	$t_1 = \frac{ s(0) }{k_1}$	$t < \frac{\epsilon s(0) }{k}$
reduce the chattering of SMC	none	$k < \epsilon k_1$
bandwidth	$\Delta = k_1 T$	$\Delta \approx \frac{k x_1 T}{1+ x_1 }$

## Response to Reviewers