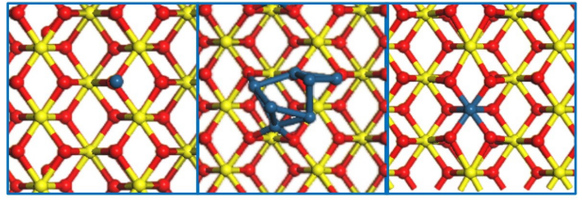
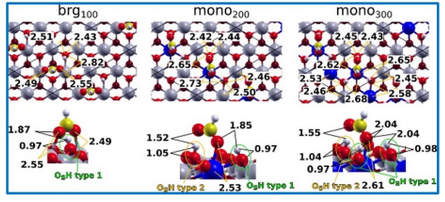
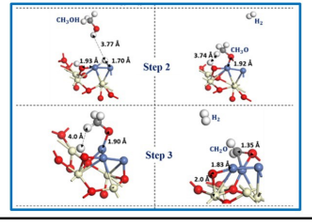
Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Table S10. Comparison of previous work on the mechanism of MD reaction over CeO_2-supported catalysts.

Catalyst	Structural model	Research method	Mechanism	RDS energy barrier	Reference
$Pt_1/Ce_{1-x}O_2(110)$, $Pt_7/CeO_2(110)$, $Pt_1/Ce_{1-x}O_2(110)$		DFT calculations	$CH_3OH \rightarrow CH_3O \rightarrow CH_2O \rightarrow CHO \rightarrow CO$	1.114 eV, 0.602 eV, 0.568 eV	In this work
Pt_1/CeO_2	Pt-CeO_2 interaction is still unclear	DRIFTS	$CH_3OH \rightarrow CH_3O \rightarrow CO$	/	48
$CeO_2(111)$		TPSR-IR and DFT	$CH_3OH \rightarrow$ formate	/	38
Cu/CeO_2	Cu clusters loaded on CeO_2	TPD-DRIFTS	$CH_3OH \rightarrow CH_3O \rightarrow$ formate $\rightarrow CO$	/	39
$Ni_3/CeO_2(11\bar{1})$ $Ni_3/CeO_2(\bar{1}1\bar{1})$		DFT calculations	$CH_3OH \rightarrow CH_3O \rightarrow CH_2O \rightarrow CO$	3.805 eV, 1.662 eV	40