Supplementary Material (ESI) for Green Chemistry

†Electronic Supporting information

CO_2 activation and promotional effect in the oxidation of cyclic olefins over mesoporous carbon nitrides

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Figure S1 Special Setup for IR spectral analysis of remnant gas after reaction

Process for analyzing gas after the reaction.

1. Evacuation of IR cell using high vacuum system.
2. Check with plasma source for vacuum in the IR cell.
3. After completion of reaction connect the Autoclave with the IR cell.
4. Release the autoclave valve slowly for passage of gas into the IR cell.
5. Disconnect the IR cell and analyze using FTIR spectrometer

Table S2 Elemental analysis data of carbon nitrides

MCNs	wt %					Atomic Ratios	
	C	H	O	N	others	N / C	C/N
UF-MCN	**48.13**	**1.84**	**6.18**	**18.79**	**25.06**	**0.33**	**2.5**
MG-MCN	**70.60**	**1.45**	**6.05**	**13.13**	**8.77**	**0.16**	**5.3**
MS-MCN	**33.76**	**2.05**	**6.60**	**56.33**	**1.26**	**1.43**	**0.6**

Figure S3. XPS C 1s N1s and O1s core-level spectra of Carbon nitrides

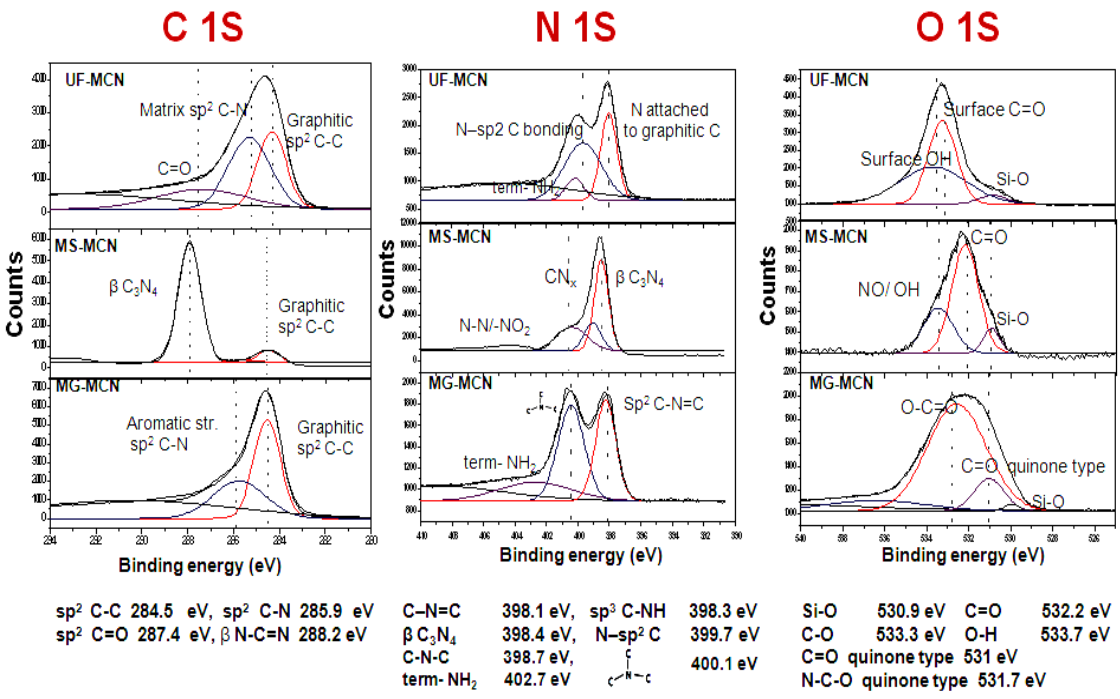


Figure S4. XPS C 1s N1s and O1s core-level spectra of Carbon nitrides
a) UF-MCN b) MS-MCN c) MG-MCN

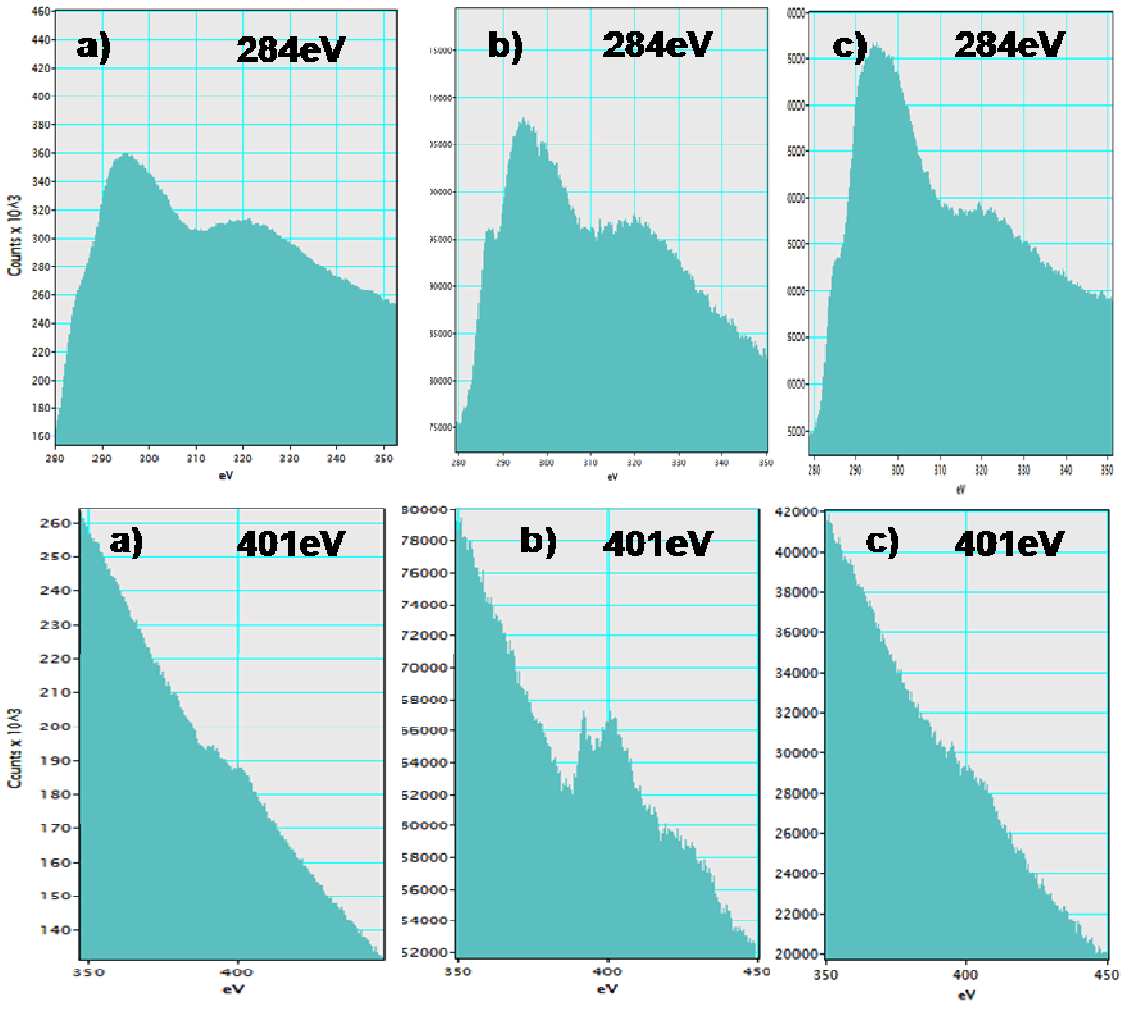
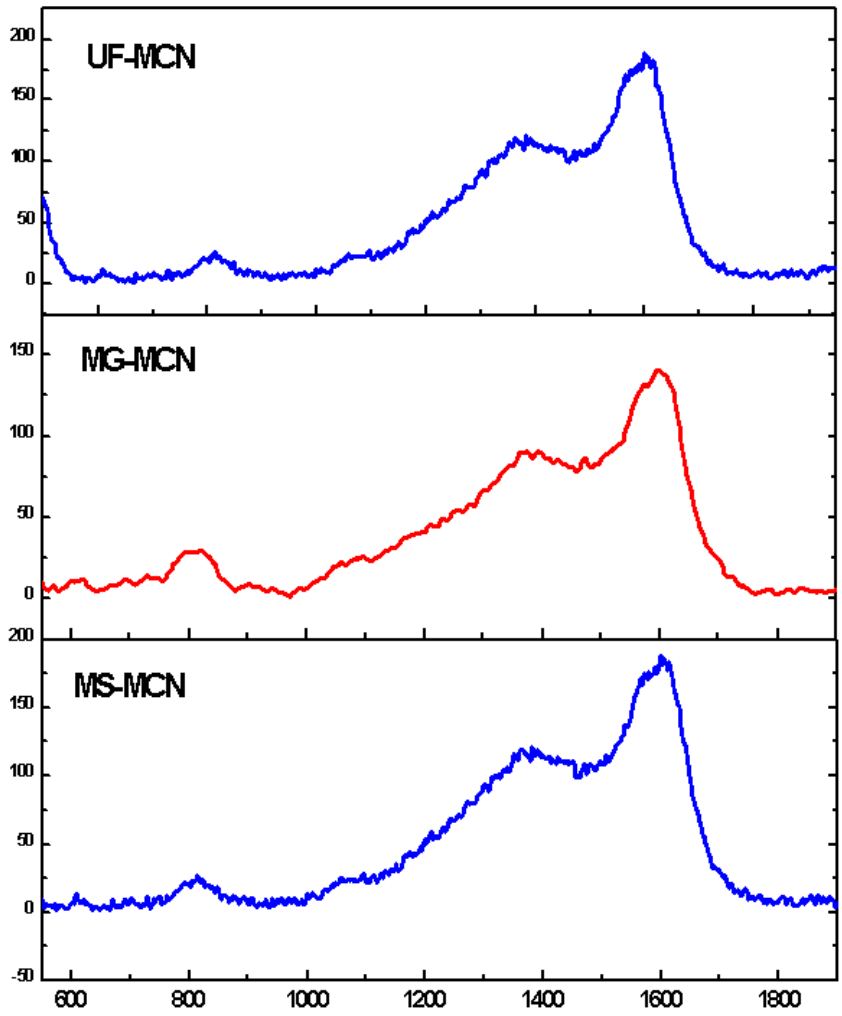


Table S5. Raman Spectra of carbon nitrides

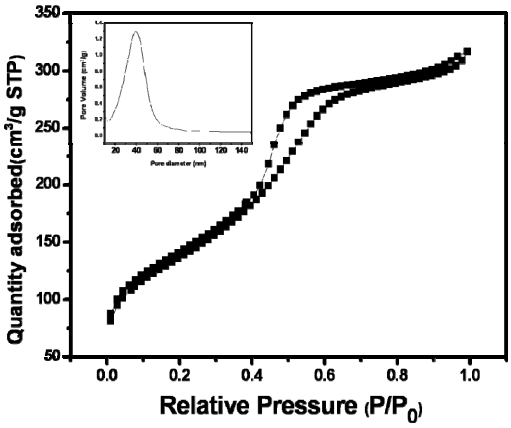


The band positions and the ratios are calculated by Gaussian deconvolution correction

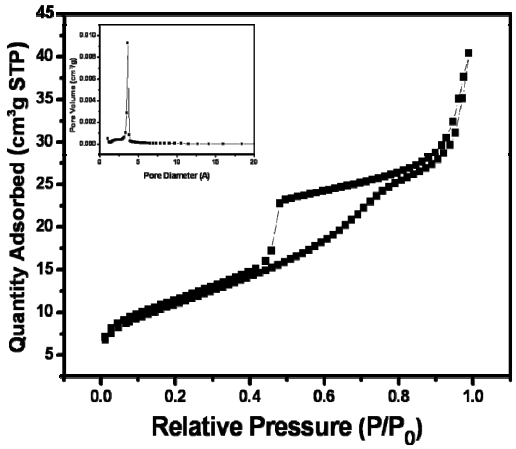
MCN	G-band	D-band	ID/IG ratio
UF-MCN	1366	1590	0.76
MG-MCN	1377	1590	0.82
MS-MCN	1336	1569	0.37

Figure S6. N2 adsorption–desorption of Carbon nitrides
a) UF-MCN b) MS-MCN c) MG-MCN

a)



b)



c)

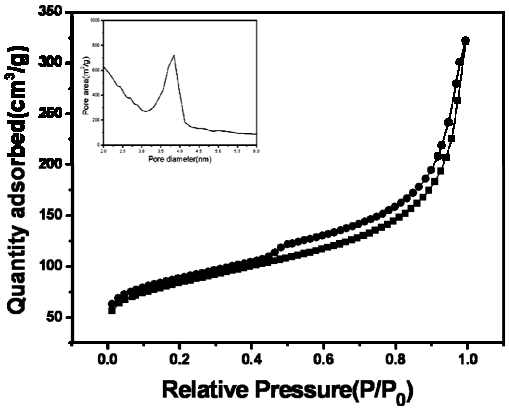
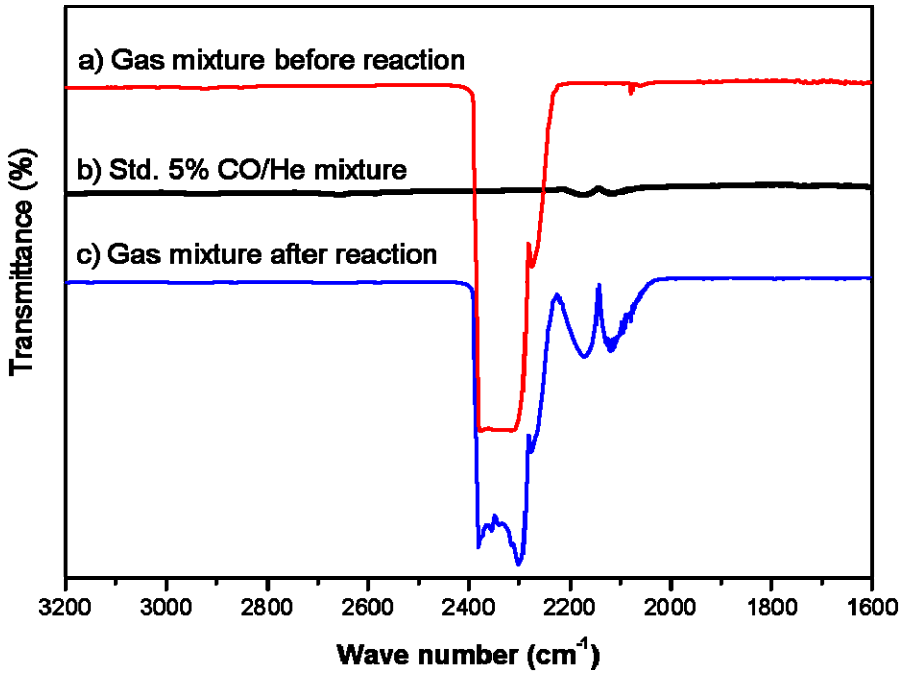
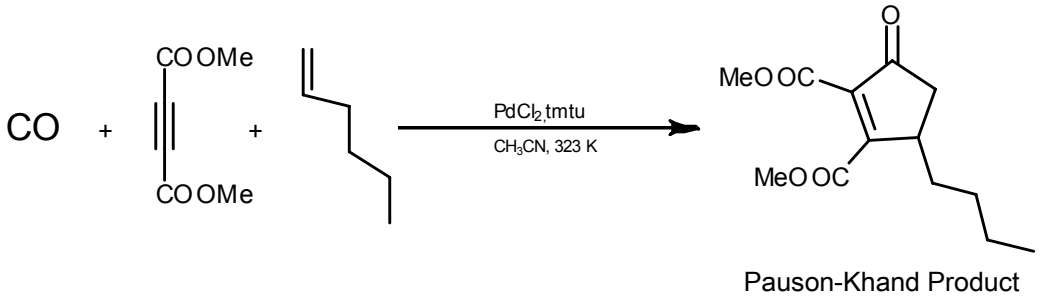


Figure S7. Analysis of gaseous mixture after reaction by IR spectroscopy.



Scheme S8. Pauson-Khand reaction for detection of CO



Pauson-Khand Product