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APPENDICES

Appendix A Effect of Liquid Flowrate

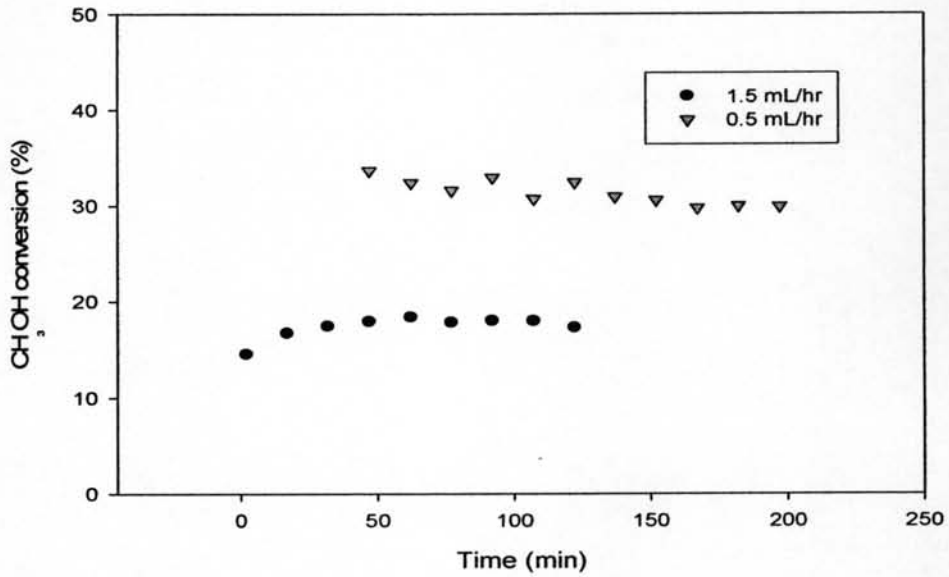


Figure A1 Effect of liquid flowrate on methanol conversion.

The reaction temperature was carried at 400°C, steam to methanol molar ratio of 1.3, 0.1g of Au/CeO_2 (CP) catalyst, and 34 mL/min of carrier gas (He). When decreasing the liquid flowrate, the methanol conversion is increased.

Appendix B Size Dependency in the DM of Gold Catalysts

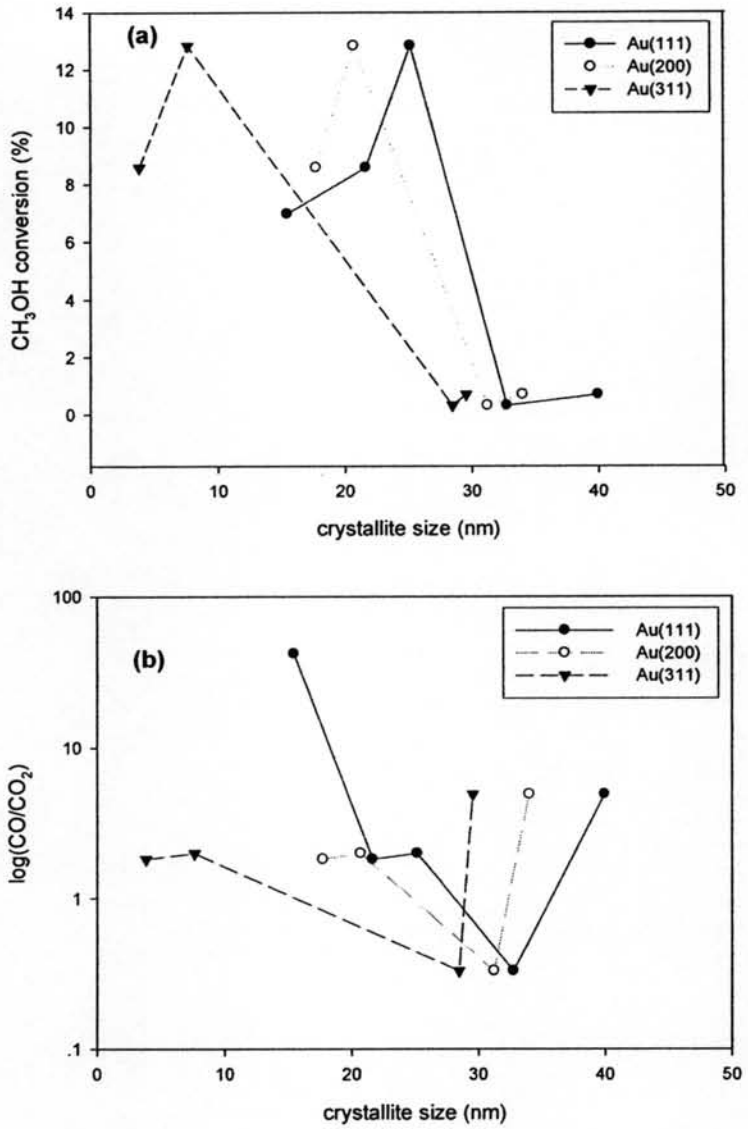


Figure B1 gold crystallite size versus methanol conversion (a) and CO/CO_2 (b) of Au(111), Au(331), and Au(200) in DM reaction

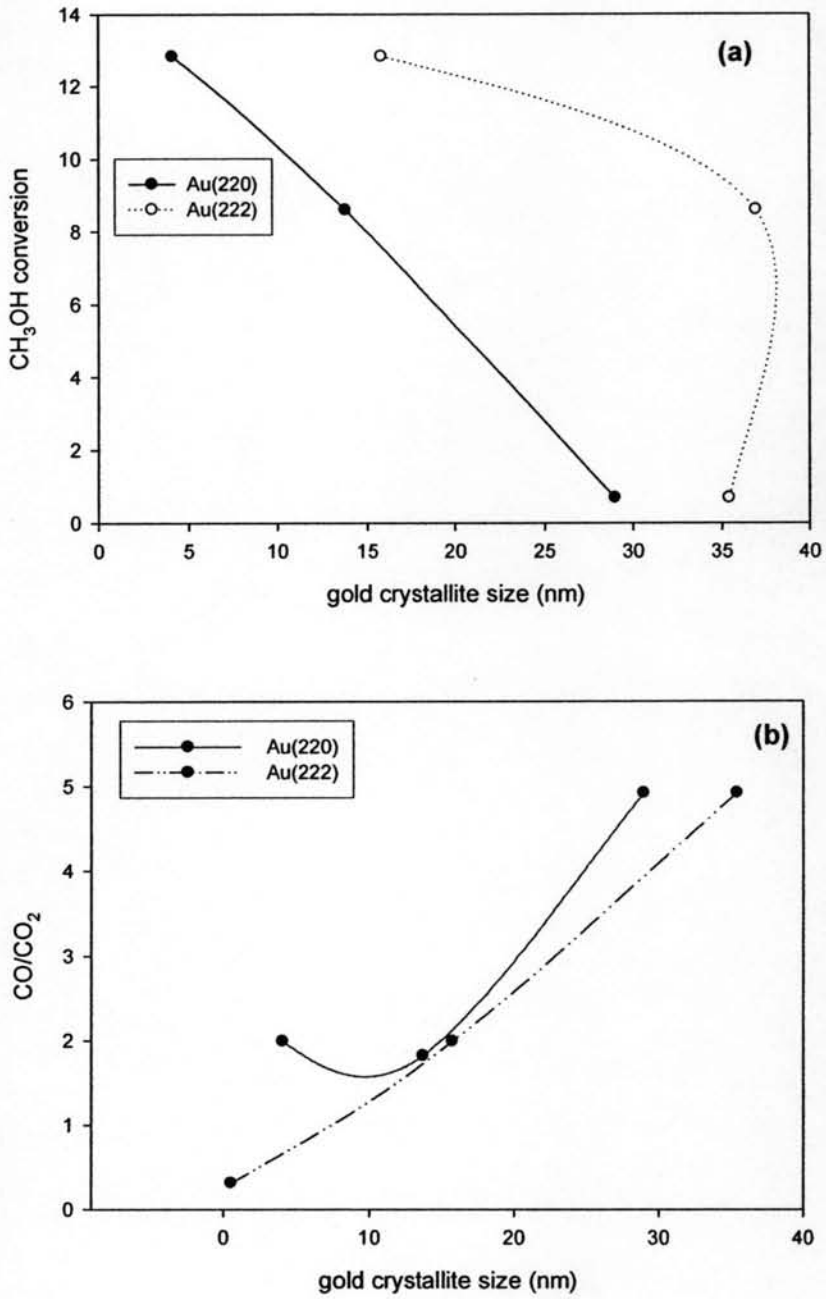
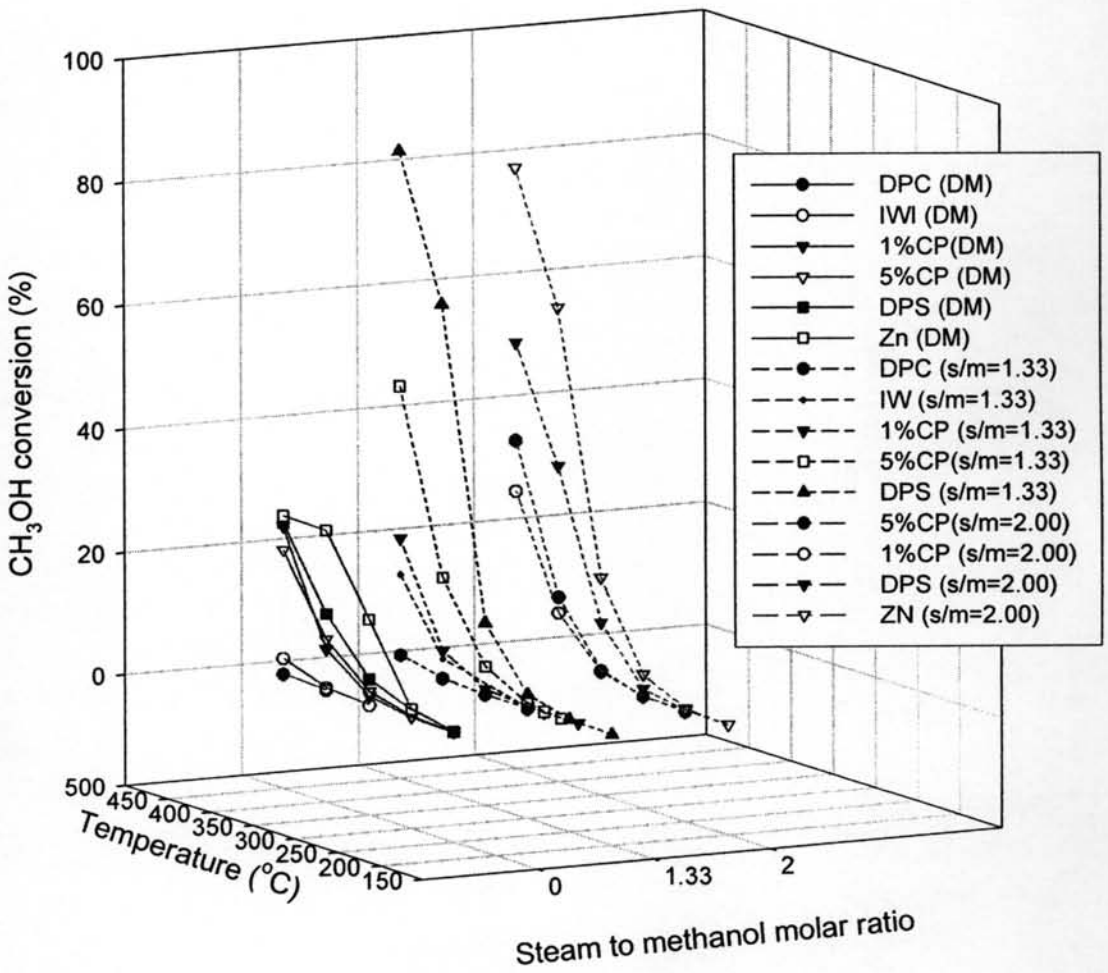
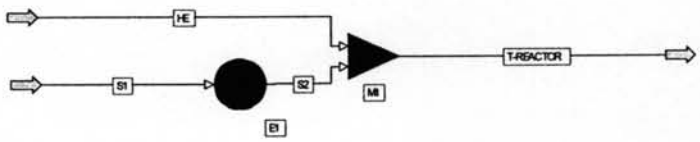


Figure B2 gold crystallite size versus methanol conversion (a) and CO/CO_2 (b) of Au(220) and Au(222) planes.in DM reaction

Appendix C Effect of s/m Ratio of Supported Gold Catalyst



Appendix D Feed Flowrate Calculation from PRO/II



Stream Name Stream Description Phase		S1 Liquid	S2 Vapor	HE Vapor	T-REACTOR Vapor
Fluid Rates	G-MOL/HR				
WATER		0.0306	0.0306	0.0000	0.0306
METHANOL		0.0235	0.0235	0.0000	0.0235
HELIUM		0.0000	0.0000	0.0433	0.0433
Rate	G-MOL/HR	0.054	0.054	0.043	0.097
Temperature	C	25.0000	150.0000	150.0000	150.0000
Pressure	ATM	1.0000	1.0000	1.0000	1.0000
Enthalpy	MM BTU/HR	0.0000	0.0000	0.0000	0.0000
Molecular Weight					
Vapor Rate	CM3/HR	1.512	n/a	n/a	n/a
Liquid Rate	G/CM3	n/a	0.001	0.000	0.001
Vapor Std. Density	G/CM3	0.870	n/a	n/a	n/a
Liquid Std. Density					

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