

**ABSTRACT SYMPOSIUM NAME:** Chemistry of Materials: Metal Organic Frameworks-Oral

**ABSTRACT SYMPOSIUM PROGRAM AREA NAME:** INOR

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**PRESENTATION TYPE:** Oral Only : Do not consider for Sci-Mix

**TITLE:** Effect of different synthesis methods and strategies on the properties of copper based and iron based metal organic frameworks

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**ABSTRACT BODY:**

**Abstract:** It is known that different synthesis methods provide different properties to metal organic frameworks. However, effect of different synthesis strategies on properties of metal organic frameworks has not been reported in detail yet. To fulfill the missing gap in literature and understand effect of synthesis parameters on structural and surface properties of our novel copper based and iron based metal organic frameworks, we synthesized our novel copper based and iron based metal organic framework by solvothermal and microwave assisted methods. For solvothermal process effect of mixing, pH, heating temperature, heating duration, solvent for washing, washing procedure, drying temperature and drying duration are investigated. For microwave assisted method, we examined effect of power, heating duration, washing solvent, washing procedure, drying temperature and drying duration. To figure out and examine effects, samples prepared by different synthesis strategies are characterized by X-ray diffractometer (XRD), scanning electron microscopy (SEM), Brunauer–Emmett–Teller (BET) method and thermogravimetric analysis (TGA). Moreover, the crystal structure of copper based and iron based metal organic frameworks are examined in detail with TOPAS software. By this study, we identified, quantified the crystal structures formed by preparing copper based and iron based metal organic frameworks with different synthesis methods and different synthesis parameters. With this study, we do not only fill the missing gap in literature by investigating the effect of synthesis methods and synthesis parameters on structural and surface properties of our novel copper based and iron based metal organic frameworks but also provide synthesis strategy for each particular metal organic framework that provides the highest surface that has not been achieved before. In conclusion, proposed study has figured out a strategy that can achieve the highest surface area and examined the different metal organic frameworks produced due to synthesis method and synthesis parameter difference by doing detailed characterization analysis.  
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