

Bachelor Thesis

Use of a ligand containing a pyrazole functionality and two carboxyl groups to construct new MOFs for applications in gas storage

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Abstract

CHAPTER 1: INTRODUCTION

Over the past 150 year supramolecular chemistry has grown exponentially: the field has expanded to include a wide range of applications, in what can be the defined as a new chemical space. This chapter aims to provide a brief historical account of the most significant development in supramolecular chemistry, specifically speaking about MOFs and 3D periodic structures and their implementation in gas adsorption and electrochemistry applications.

CHAPTER 2: RESULT AND DISCUSSION

The construction of 3D periodic solid structure oriented towards specific gas adsorption remain a challenging synthetic problem for chemists, several problem related to their development and use must be accounted.

In this chapter will be reported the advancement in the synthesis of a pyrazole based ligand and the utilization of a 1,3 diketone ligand in electrochemistry oriented application.

CHAPTER 3: EXPERIMENTAL SECTION

Several synthesis and characterization method as been applied, both in the synthesis of pyrazole based ligand and 1,3 diketone MOF electrochemistry exploration, in order to achieve the results discussed earlier.

They will be analyzed in great detail in this chapter.

CHAPTER 4: TOOL DEVELOPMENT

During the time spent working on these wide range topics the need of small and reliable analytical tools raised. Being able to analyze and draw a comparison between obtained results in a fast manner has been very important.

Across this chapter will be presented a tiny python implementation for fast data analysis and graphs creation.

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1 Introduction

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2 Result and discussion

3 Experimental section