**Hydrogen Bonding in Organic Synthesis**

**Description:** Snow and ice, water droplets, and all key materials of life — the double strands of DNA and all proteins — are held together by intermolecular forces called hydrogen bonds. These bonds, although weaker than bonds within molecules, are still strong enough to chaperone molecules into desired orientations, allowing chemists to use them as tools to perform reactions with high selectivity. In addition, hydrogen bonding can lead to metal-free catalysts, thus saving chemicals and energy in an otherwise lengthy purification process while also reducing the heavy metal output in the environment.

This first comprehensive overview of the rapidly growing field emphasizes the use of hydrogen bonding as a tool for organic synthesis, especially catalysis. As such, it covers such topics as enzyme chemistry, organocatalysis and total synthesis, all unified by the unique advantages of hydrogen bonding in the construction of complex molecules from simple precursors.

**From the contents:**

* Introduction
* Hydrogen Bond Catalysis or Brønsted Acid Catalysis? General Considerations
* Computational Studies of Organocatalytic Processes Based on Hydrogen Bonding
* Oxyanion holes and their mimics
* Brønsted Acids, H–Bond Donors, and Combined Acid Systems in Asymmetric Catalysis
* Hydrogen Bonding in Organic Synthesis – (Thio)urea Organocatalysts
* Highlights of Hydrogen Bonding in Total Synthesis

Providing everything you need to know, this is a definite must for every synthetic chemist in academia and industry.

**Contents:**

**INTRODUCTION**

Introduction

Hydrogen Bonding in Organic Synthesis

HYDROGEN–BOND CATALYSIS OR BRONSTED–ACID CATALYSIS? GENERAL CONSIDERATIONS

Introduction

What is the Hydrogen Bond?

Hydrogen–Bond Catalysis or Bronsted–Acid Catalysis

Bronsted–Acid Catalysis

Hydrogen–Bond Catalysis

COMPUTATIONAL STUDIES OF ORGANOCATALYTIC PROCESSES BASED ON HYDROGEN BONDING

Introduction
Dynamic Kinetic Resolution (DKR) of Azlactones–Thioureas Can Act as Oxyanion Holes Comparable to Serine Hydrolases

On the Bifunctionality of Chiral Thiourea–Tert–Amine–Based Organocatalysts: Competing Routes to C–C Bond Formation in a Michael Addition

Dramatic Acceleration of Olefin Epoxidation in Fluorinated Alcohols: Activation of Hydrogen Peroxide by Multiple Hydrogen Bond Networks

TADDOL–Promoted Enantioselective Hetero–Diels–Alder Reaction of Danishefsky's Diene with Benzaldehyde –

Another Example for Catalysis by Cooperative Hydrogen Bonding

Epilog

OXYANION HOLES AND THEIR MIMICS

Introduction

What are Oxyanion Holes?

A More Detailed Description of the Two Classes of Oxyanion Holes in Enzymes

Oxyanion Hole Mimics

Concluding Remarks

BRONSTED ACIDS, H–BOND DONORS, AND COMBINED ACID SYSTEMS IN ASYMMETRIC CATALYSIS

Introduction

Bronsted Acid (Phosphoric Acid and Derivatives)

N–H Hydrogen Bond Catalysts

Combined Acid Catalysis

(THIO)UREA ORGANOCATALYSTS

Introduction and Background

Synthetic Applications of Hydrogen–Bonding (Thio)urea Organocatalysts

Summary and Outlook

HIGHLIGHTS OF HYDROGEN BONDING IN TOTAL SYNTHESIS

Introduction

Intramolecular Hydrogen Bonding in Total Syntheses

Intermolecular Hydrogen Bondings in Total Syntheses

Conclusions

Ordering:  
Order Online - http://www.researchandmarkets.com/reports/1198928/

Order by Fax - using the form below
Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct.

Product Name: Hydrogen Bonding in Organic Synthesis
Web Address: http://www.researchandmarkets.com/reports/1198928/
Office Code: SCDKGPS

Product Format
Please select the product format and quantity you require:

Quantity
Hard Copy (Hard Back): USD 226 + USD 29 Shipping/Handling

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title: Mr [ ] Mrs [ ] Dr [ ] Miss [ ] Ms [ ] Prof [ ]
First Name: ____________________________ Last Name: ____________________________
Email Address: * ____________________________
Job Title: ____________________________
 Organisation: ____________________________
Address: ____________________________
City: ____________________________
Postal / Zip Code: ____________________________
Country: ____________________________
Phone Number: ____________________________
Fax Number: ____________________________

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:

Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:

Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: ________________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:

(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World