

Abbreviations

Ac	Acetyl	HPLC	High performance liquid chromatography
acac	Acetylacetonate	HIV	Human immunodeficiency virus
AD	Asymmetric dihydroxylation	IR	Infrared
ADP	Adenosine 5'-diphosphate	KHMDS	Potassium Hexamethyldisilazide
AE	Asymmetric epoxidation	LCAO	Linear combination of atomic orbitals
AIBN	2,2'-Azobisisobutyronitrile	LDA	Lithium diisopropylamide
AO	Atomic orbital	LHMDS	Lithium hexamethyldisilazide
Ar	Aryl	LICA	Lithium isopropylcyclohexylamide
ATP	Adenosine 5'triphosphate	LTMP, LiTMP	Lithium 2,2,6,6-tetramethylpiperidide
9-BBN	9-Borabicyclo[3.3.1]nonane	LUMO	Lowest unoccupied molecular orbital
BHT	Butylated hydroxy toluene (2,6-di- <i>t</i> -butyl-4-methylphenol)	<i>m</i> -CPBA	<i>meta</i> -Chloroperoxybenzoic acid
BINAP	2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl	Me	Methyl
Bn	Benzyl	MO	Molecular orbital
Boc, BOC	<i>tert</i> -Butyloxycarbonyl	MOM	Methoxymethyl
Bu	Butyl	Ms	Methanesulfonyl (mesyl)
<i>s</i> -Bu	<i>sec</i> -Butyl	NAD	Nicotinamide adenine dinucleotide
<i>t</i> -Bu	<i>tert</i> -Butyl	NADH	Reduced NAD
Bz	Benzoyl	NBS	<i>N</i> -Bromosuccinimide
Cbz	Carboxybenzyl	NIS	<i>N</i> -Iodosuccinimide
CDI	1,1'-Carbonyldiimidazole	NMO	<i>N</i> -Methylmorpholine- <i>N</i> -oxide
CI	Chemical ionization	NMR	Nuclear magnetic resonance
CoA	Coenzyme A	NOE	Nuclear Overhauser effect
COT	Cyclooctatetraene	PCC	Pyridinium chlorochromate
Cp	Cyclopentadienyl	PDC	Pyridinium dichromate
DABCO	1,4-Diazabicyclo[2.2.2]octane	Ph	Phenyl
DBE	Double bond equivalent	PPA	Polyphosphoric acid
DBN	1,5-Diazabicyclo[4.3.0]non-5-ene	Pr	Propyl
DBU	1,8-Diazabicyclo[5.4.0]undec-7-ene	<i>i</i> -Pr	<i>iso</i> -Propyl
DCC	<i>N,N</i> -dicyclohexylcarbodiimide	PTC	Phase transfer catalysis
DDQ	2,3-Dichloro-5,6-dicyano-1,4-benzoquinone	PTSA	<i>p</i> -Toluenesulfonic acid
DEAD	Diethyl azodicarboxylate	py	pyridine
DIBAL	Diisobutylaluminum hydride	Red Al	Sodium bis(2-methoxyethoxy)aluminum hydride
DMAP	4-Dimethylaminopyridine	RNA	Ribonucleic acid
DME	1,2-Dimethoxyethane	SAC	Specific acid catalysis
DMF	<i>N,N</i> -Dimethylformamide	SAM	<i>S</i> -Adenosyl methionine
DMPU	1,3-Dimethyl-3,4,5,6-tetrahydro-2(1 <i>H</i>)-pyrimidinone	SBC	Specific base catalysis
DMS	Dimethyl sulfide	S _N 1	Unimolecular nucleophilic substitution
DMSO	Dimethyl sulfoxide	S _N 2	Bimolecular nucleophilic substitution
DNA	Deoxyribonucleic acid	SOMO	Singly occupied molecular orbital
E1	Unimolecular elimination	STM	Scanning tunnelling microscopy
E2	Bimolecular elimination	TBDMS	Tert-butyltrimethylsilyl
E _a	Activation energy	TBDPS	Tert-butyl-diphenylsilyl
EDTA	Ethylenediaminetetraacetic acid	Tf	Trifluoromethanesulfonyl (triflyl)
EPR	Electron paramagnetic resonance	THF	Tetrahydrofuran
ESR	Electron spin resonance	THP	Tetrahydropyran
Et	Ethyl	TIPS	Triisopropylsilyl
FGI	Functional group interconversion	TMEDA	<i>N,N,N',N'</i> -tetramethyl-1,2-ethylenediamine
Fmoc	Fluorenylmethyloxycarbonyl	TMP	2,2,6,6-Tetramethylpiperidine
GAC	General acid catalysis	TMS	Trimethylsilyl, tetramethylsilane
GBC	General base catalysis	TMSOTf	Trimethylsilyl triflate
HMPA	Hexamethylphosphoramide	TPAP	Tetra- <i>N</i> -propylammonium perruthenate
HMPT	Hexamethylphosphorous triamide	Tr	Triphenylmethyl (trityl)
HOBt	1-Hydroxybenzotriazole	TS	Transition state
HOMO	Highest occupied molecular orbital	Ts	<i>p</i> -Toluenesulfonyl. Tosyl
		UV	Ultraviolet
		VSEPR	Valence shell electron pair repulsion

Periodic table

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	1 I	2 II	3 III	4 IV	5 V	6 VI	7 VII	8	9 VIII
S	3 Li name: 6.941 r: 0.98	4 Be name: 9.012182 r: 1.07							
2	Lithium	Beryllium							
	11 Na name: 22.98977 r: 0.93	12 Mg name: 24.305 r: 1.32							
3	Sodium	Magnesium							
	19 K name: 39.0983 r: 0.82	20 Ca name: 40.078 r: 1							
4	Potassium	Calcium							
	37 Rb name: 85.4678 r: 0.82	38 Sr name: 87.62 r: 0.95							
5	Rubidium	Strontium							
	55 Cs name: 132.9054 r: 0.79	56 Ba name: 137.327 r: 0.89							
6	Cesium	Barium							
	87 Fr name: 223 r: 0.7	88 Ra name: 226.0254 r: 0.9							
7	Francium	Radium							
			d						
			21 Sc name: 44.95591 r: 1.29	22 Ti name: 47.88 r: 1.54	23 V name: 50.9415 r: 1.63	24 Cr name: 51.9961 r: 1.69	25 Mn name: 54.93805 r: 1.85	26 Fe name: 55.847 r: 1.93	27 Co name: 58.9332 r: 1.88
			Scandium	Titanium	Vanadium	Chromium	Manganese	Iron	Cobalt
			39 Y name: 88.90585 r: 1.32	40 Zr name: 91.224 r: 1.33	41 Nb name: 92.90638 r: 1.8	42 Mo name: 95.94 r: 2.18	43 Tc name: 98 r: 1.9	44 Ru name: 101.07 r: 2.2	45 Rh name: 102.905 r: 2.28
			Yttrium	Zirconium	Niobium	Molybdenum	Technetium	Ruthenium	Rhodium
			71 Lu name: 174.967 r: 1.27	72 Hf name: 178.49 r: 1.3	73 Ta name: 180.9479 r: 1.8	74 W name: 183.85 r: 2.39	75 Re name: 186.207 r: 1.9	76 Os name: 190.2 r: 2.2	77 Ir name: 192.22 r: 2.2
			Lutetium	Hafnium	Tantalum	Tungsten	Rhenium	Osmium	Iridium
			103 Lr name: 260 r:	104 Rf name: 261 r:	105 Db name: 262 r:	106 Sg name: 263 r:	107 Bh name: 262 r:	108 Hs name: 265 r:	109 Mt name: 266 r:
			Lawrencium	Rutherfordium	Dubnium	Seaborgium	Bohrium	Hassium	Meitnerium
			f						
			57 La name: 138.9055 r: 1.1	58 Ce name: 140.116 r: 1.32	59 Pr name: 140.9077 r: 1.33	60 Nd name: 144.24 r: 1.34	61 Pm name: 145 r: 1.35	62 Sm name: 150.36 r: 1.37	63 Eu name: 151.965 r: 1.2
			Lanthanum	Cerium	Praseodymium	Neodymium	Promethium	Samarium	Europium
			89 Ac name: 227 r: 1.1	90 Th name: 232.0381 r: 1.8	91 Pa name: 231.0369 r: 1.9	92 U name: 238.0289 r: 1.39	93 Np name: 237.0482 r: 1.39	94 Pu name: 244 r: 1.39	95 Am name: 243 r: 1.5
			Actinium	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium

Key	Symbol
Atomic number	00 Xx
Relative Atomic Mass	name: 0.000
Electronegativity (Pauling)	r: 0.0
Element	Name

1s

1 H mass: 1.00794 P: 0.0	2 He mass: 4.002602 P: 0
Hydrogen	Helium

10	11 I	12 II	13 III	14 IV	15 V	16 VI	17 VII	18 VIII
			3 B mass: 10.811 P: 2.04 Boron	6 C mass: 12.011 P: 2.55 Carbon	7 N mass: 14.00674 P: 3.04 Nitrogen	8 O mass: 15.9994 P: 3.44 Oxygen	9 F mass: 18.9984 P: 3.96 Fluorine	10 Ne mass: 20.1797 P: 0 Neon
			13 Al mass: 26.98154 P: 3.61 Aluminium	14 Si mass: 28.0855 P: 3.5 Silicon	15 P mass: 30.97376 P: 3.19 Phosphorus	16 S mass: 32.066 P: 3.64 Sulfur	17 Cl mass: 35.4527 P: 3.16 Chlorine	18 Ar mass: 39.948 P: 0 Argon
28 Ni mass: 58.6934 P: 3.91 Nickel	29 Cu mass: 63.546 P: 3.7 Copper	30 Zn mass: 65.39 P: 3.65 Zinc	31 Ga mass: 69.723 P: 3.81 Gallium	32 Ge mass: 72.61 P: 3.01 Germanium	33 As mass: 74.92159 P: 3.15 Arsenic	34 Se mass: 78.96 P: 3.55 Selenium	35 Br mass: 79.904 P: 3.96 Bromine	36 Kr mass: 83.8 P: 0 Krypton
46 Pd mass: 106.42 P: 2.2 Palladium	47 Ag mass: 107.8682 P: 3.93 Silver	48 Cd mass: 112.413 P: 3.69 Cadmium	49 In mass: 114.82 P: 3.78 Indium	50 Sn mass: 118.71 P: 3.96 Tin	51 Sb mass: 121.757 P: 3.05 Antimony	52 Te mass: 127.6 P: 2.3 Tellurium	53 I mass: 126.9045 P: 2.96 Iodine	54 Xe mass: 131.29 P: 0 Xenon
78 Pt mass: 195.08 P: 2.28 Platinum	79 Au mass: 196.9666 P: 2.94 Gold	80 Hg mass: 200.59 P: 2 Mercury	81 Tl mass: 204.3833 P: 2.04 Thallium	82 Pb mass: 207.2 P: 2.33 Lead	83 Bi mass: 208.9804 P: 2.02 Bismuth	84 Po mass: 209 P: 2 Polonium	85 At mass: 210 P: 2.2 Astatine	86 Rn mass: 222 P: 0 Radon
10 Uun mass: P: Uun	111 Uuu mass: P: Uuu	112 Uub mass: P: Uub						

64 Gd mass: 157.25 P: 3.2 Gadolinium	65 Tb mass: 158.9253 P: 3.2 Terbium	66 Dy mass: 162.5 P: 3.22 Dysprosium	67 Ho mass: 164.9303 P: 3.23 Holmium	68 Er mass: 167.26 P: 3.24 Erbium	69 Tm mass: 168.9342 P: 3.25 Thulium	70 Yb mass: 173.04 P: 3.1 Ytterbium
98 Cm mass: 247 P: 3.3 Curium	97 Bk mass: 247 P: 3.3 Berkelium	98 Cf mass: 285 P: 3.3 Californium	99 Es mass: 282 P: 3.3 Einsteinium	100 Fm mass: 287 P: 3.3 Fermium	101 Md mass: 288 P: 3.3 Mendelevium	102 No mass: 289 P: 3.3 Nobelium

Lanthanides

Actinides

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This completely new, innovative textbook provides a comprehensive account of organic chemistry for undergraduate courses. The approach, based on mechanism and reaction type, aims at understanding rather than factual knowledge, enabling the student to understand reactions not previously encountered.

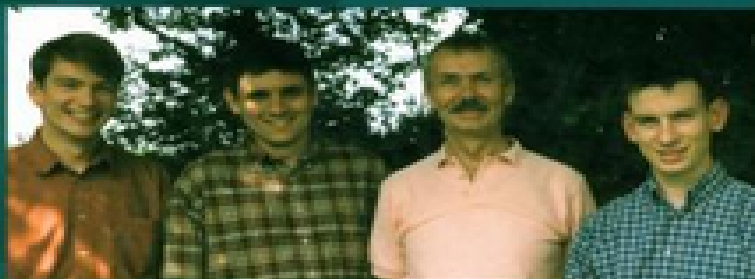
The basics of the subject are explained carefully and thoroughly, with an early emphasis on how to draw molecules realistically and how to draw mechanisms to reveal the fundamental chemistry. Important points are revisited when they become relevant in later chapters and new examples, frequently taken from everyday life and from medicinal chemistry, are given each time a concept resurfaces.

The design of the book has many features to aid comprehension. Colour is used flexibly to draw attention to whatever the authors wish to emphasize in a particular context, rather than being used in a rigid, systematic way. Four types of box are used to separate material from the main text, ranging from important summaries to diversions which can be omitted at first reading.

Each chapter opens with a 'Connections' box, divided into three columns:

- **Building on:** details the previous chapters which relate directly to the material within the chapter.
- **Arriving at:** provides a guide to what will be found within the chapter.
- **Looking forward to:** details the chapters later in the book which develop and expand on the material in the chapter.

Throughout the text, a personal and honest approach is adopted, the authors writing clearly and directly to the reader, sharing their enthusiasms, understandings and doubts. Above all, they want students to be excited by the universality of organic chemistry rather than be overwhelmed by facts.



The Authors (left to right)

Peter Wothers
University of Cambridge

Nick Greeves
University of Liverpool

Stuart Warren
University of Cambridge

Jonathan Clayden
University of Manchester

Cover illustration: *Nick Colebrook*

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