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Exciton dynamics in self-assembled molecular nanotubes

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Exciton Dynamics in Self-Assembled Molecular Nanotubes

Björn Kriete

2020

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Exciton Dynamics in Self-Assembled Molecular Nanotubes

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Rector Magnificus Prof. C. Wijmenga
and in accordance with
the decision by the College of Deans.

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Thesis Abbreviations

AOPDF	Acousto-optical programmable dispersive filter
AFM	Atomic force microscopy
BBO	Beta barium borate (crystal)
BIC	5,5',6,6'-tetrachloro-1,1'-diethyl-3,3'-bis(3-sulfopropyl)-enzimidacarbocyanine
BS	Beamsplitter
C8S3(-Cl)	3,3'-bis(2-sulfopropyl)-5,5',6,6'-tetrachloro-1,1'-dioctylbenzimidacarbocyanine (full name including '-Cl' only used in Chapter 6)
C8S3-Br	3,3'-bis(2-sulfopropyl)-5,5',6,6'-tetrabromo-1,1'-dioctylbenzimidacarbocyanine
C8S3-F	3,3'-bis(2-sulfopropyl)-5,5',6,6'-tetrafluoro-1,1'-dioctylbenzimidacarbocyanine
CCD	Charge-coupled device
CD	Circular dichroism
CL	Cylindrical lens
Cryo-TEM	Cryogenic transmission electron microscopy
CTF	Contrast transfer function
CW	Continuous wave
DM	Dichroic mirror
EEA	Exciton-exciton annihilation
EEI2D	Exciton-exciton interaction 2D (spectroscopy)
EMCCD	Electron multiplying charge-coupled device
ESA	Excited state absorption
EHB	Extended Herringbone model
ET	Exciton/energy transfer
FD	Flash-dilution
FROG	Frequency-resolved optical gating
FTIR	Fourier-transform infrared spectroscopy
FWHM	Full width half maximum
GSB	Ground-state bleach
HeNe	Helium-neon laser
HOMO	Highest occupied molecular orbital
HWHM	Half width half maximum
IRF	Instrument response function
LD(r)	(Reduced) linear dichroism
LH2	Light-harvesting complex 2
LUMO	Lowest unoccupied molecular orbital
MeOH	Methanol

MC	Monte-Carlo (simulations)
NA	Numerical aperture
ND	Neutral density (filter)
(N)IR	(Near) infrared
NOPA	Non-collinear optical parametric amplifier
NMOS	n-type metal-oxide-semiconductor (sensor)
OD	Optical density
PIC	Pseudoisocyanine
PL	Photoluminescence
PM	Parabolic mirror
PSF	Point spread function
RMS	Root-mean-square
(R)QY	(Relative) quantum yield
SD	Standard deviation
SE	Standard error
SE	Stimulated emission
SH(G)	Second-harmonic (generation)
SI	Supplementary information
SNR	Signal-to-noise ratio
TA(S)	Transient absorption (spectroscopy)
TBC	5,5',6,6'-tetrachlorobenzimidacarbocyanine
TCSPC	Time-correlated single photon counting
TDBC	5,5',6,6'-tetrachloro-1,1'-diethyl-3,3'-di(4-sulfobutyl)benzimidazolocarbo- cyanine
TEM	Transmission electron microscopy
THz	Terahertz
Ti:Sapphire	Titanium-doped sapphire (laser gain medium)
UV	Ultraviolet
WL(C)	White-light (continuum)
WP	Waveplate