

## II. PUBLICATIONS

### Veröffentlichungen

**1. Photoinduced Charge Carriers in a Donor-acceptor Double-cable Polythiophene with Covalently Bound Tetracyanoanthraquinodimethane Moieties**

G. Zerza, A. Cravino, R. Gómez, J. L. Segura, M. Svensson, M. R. Andersson, N. Martín, H. Neugebauer, N. S. Sariciftci  
MRS proceedings Vol 660 (2001) JJ8.11.1-6

**2. The Interplay of Efficiency and Morphology in Photovoltaic Devices Based on Inter-penetrating Networks of Conjugated Polymers with Fullerenes**

D. Gebeyehu, C.J.Brabec, F. Padinger, T. Fromherz, J.C. Hummelen, D. Badt, H. Schindler, N.S.Sariciftci  
Synthetic Metals 118 (2001), 1-9

**3. Multiple reduction states with different conductivities of polybenzimidazobenzophen-anthrolin (BBL) studied with infrared spectroelectrochemistry**

Y. Teketel, H. Neugebauer, N.S. Sariciftci, S.Yi, A.A. Jenekhe  
Synthetic Metals 116 (2001), 241-245

**4. Vibrational Spectroscopy on pDTT3 - a Low Band Gap Polymer Based on Dithienothiophene**

A. Cravino, H. Neugebauer, S. Luzzati, M. Catellani, N.S. Sariciftci  
Journal of Physical Chemistry B 105 (2001), 46-52

**5. Polarized Doping-induced Infrared Absorption in Highly Oriented Conjugated Polymers**

E. Kirk Miller, Christoph J. Brabec, Helmut Neugebauer, Alan J. Heeger, N. S. Sariciftci  
Chemical Physics Letters 335 (2001), 23-26

**6. Photoexcited Spectroscopy and In Situ electrochemical Spectroscopy in Conjugated Polymers: A Comparative Study**

H. Neugebauer, A. Cravino, Teketel Yohannes, N.S. Sariciftci  
Synthetic Metals 116 (2001), 115-121

**7. High oriented epitaxial oligomer/fullerene structures grown by hot wall epitaxy**

A.Y. Andreev, G. Matt, H. Sitter, C.J. Brabec, D. Badt, H. Neugebauer, N.S. Sariciftci  
Synthetic Metals 116 (2001), 235-239

**8. Photoactive Blends of Poly(para-phenylenevinylene) (PPV) with Methanofullerenes from a Novel Precursor: Photophysics and Device Performance**

C.J. Brabec, A. Cravino, G. Zerza, N.S. Sariciftci, R. Kiebooms, D. Vanderzande, J.C. Hummelen  
Journal of Physical Chemistry B 105 (2001), 1528-1536

**9. 2.5 % Efficient Organic Solar Cells**

S.E. Shaheen, C.J. Brabec, N.S. Sariciftci, F. Padinger, T. Fromherz, J.C. Hummelen  
Applied Physics Letters 78 (2001), 841-843

**10. Plastic Solar Cells**

C.J. Brabec, N.S. Sariciftci, J.C. Hummelen  
Advanced Functional Materials Vol 11, No. 1 (2001), pp 15-26

**11. Magnetic Resonance Studies on Conjugated Polymer Fullerene Mixtures**

M. C. Scharber, N. A. Schultz, C. J. Brabec, N. S. Sariciftci  
Synthetic Metals 121 (2001), 1567-1568

**12. Er<sup>3+</sup>- Emission From Organic Complexes Embedded In Thin Polymer Films**

M. Koppe, C. J. Brabec, N. S. Sariciftci, Y. Eichen, G. Nakhmanovich, E. Ehrenfreund, O. Epstein, W. Heiss  
Synthetic Metals 121 (2001), 1511-1512

**13. Low Band-Gap Polymeric Photovoltaic Devices**

S. E. Shaheen, D. Vangeneugden, R. Kiebooms, D. Vanderzande, T. Fromherz, F. Padinger, C. J. Brabec, N. S. Sariciftci  
Synthetic Metals 121 (2001), 1583-1584

**14. Organic Photovoltaic Devices produced from Conjugated Polymer / Methanofullerene Bulk Heterojunctions**

C. J. Brabec, S. E. Shaheen, T. Fromherz, F. Padinger, J. C. Hummelen, A. Dhanabalan, R. A. J. Janssen, N. S. Sariciftci  
Synthetic Metals 121 (2001), 1517-1520

**15. Recent Developments in Conjugated Polymer Based Plastic Solar Cells**

C. J. Brabec, N. S. Sariciftci  
Monatshefte f. Chemie, Chemical Monthly 132 (2001), 421-431

**16. Infrared spectroelectrochemistry on conducting polymers and fullerenes**

Carita Kvarnström, Helmut Neugebauer, Ari Ivaska  
Advanced Functional Molecules and Polymers (4 Volumes), editet by H.S. Nalwa, Vol 2 (Processing and Spectroscopy), chapter 6 (2001) 139-170

**17. Poly(2-hexyl-9,10-anthrylene vinylene) - A New Class of Soluble Poly(anthrylene vinylene)s**

R. Müllner, A. Cravino, J. Williams, F. Stelzer, G. Jakopic, G. Leising  
Synthetic Metals Vol 119 (2001) 193-194

**18. Electropolymerization and Spectroscopic Properties of a Novel Double-Cable Polythiophene with Pendant Fullerenes for Photovoltaic Applications**

A. Cravino, G. Zerza, H. Neugebauer, S. Bucella, M. Maggini, E. Menna, G. Scorrano, M. Svensson, M.R. Andersson, N.S. Sariciftci  
Synthetic Metals 121 (2001), 1555-1556

**19. Semiconductor/conjugated polymer/electrolyte interfaces studied with infrared photospectroelectrochemistry**

H. Neugebauer, Teketel Yohannes, N.S. Sariciftci  
Synthetic Metals Vol 119 (2001) 379-380

**20. In situ UV-VIS-NIR and Raman spectroelectrochemical studies of the Conjugated Ladder Polymer Polybenzimidazobenzophenanthroline (BBL)**

Teketel Yohannes, H. Neugebauer, S. Luzzati, M. Catellani, S. Yi, S.A. Jenekhe, N.S. Sariciftci  
Synthetic Metals Vol 119 (2001) 319-320

**21. Solid State dye-sensitized TiO<sub>2</sub> solar cells with poly(3-octylthiophene) as hole transport layer**

D. Gebeyehu, C.J. Brabec, F. Padinger, T. Fromherz, S. Spiekermann, N. Vlachopoulos, F. Kienberger, H. Schindler, N.S. Sariciftci  
Synthetic Metals 121 (2001), 1549-1550

**22. Degradation of Bulk Heterojunction Solar Cells Operated in an Inert Gas Atmosphere: A Systematic Study**

F. Padinger, T. Fromherz, P. Denk, C.J. Brabec, J. Zettner, T. Hierl, N.S. Sariciftci  
Synthetic Metals 121 (2001), 1605-1606

23. [\*Ultrafast Charge Transfer in Conjugated Polymer-Fullerene Composites\*](#)  
G. Zerza, C.J. Brabec, G. Cerullo, S. De Silvestri, N.S. Sariciftci  
Synthetic Metals 119 (2001), 637-638
24. [\*Para-sexiphenyl/C60 Bi- and Multilayers grown by Hot Wall Epitaxy\*](#)  
G. Matt, A. Andreev, H. Sitter, C.J. Brabec, H. Neugebauer, P. Hinterdorfer, N.S. Sariciftci  
Synthetic Metals 121 (2001), 1373-1374
25. [\*Self-assembled growth of highly oriented para- sexiphenyl thin films\*](#)  
A. Andreev, H. Sitter, C.J. Brabec, P. Hinterdorfer, G. Springholz, N.S. Sariciftci  
Synthetic Metals 121 (2001), 1379-1380
26. [\*Towards Controlled Donor-Acceptor Interactions in Non-composite Polymeric Materials: Synthesis and Characterization of a Novel Polythiophene Incorporating p-Conjugated 1,3-Dithiol-2-ylidene-fluorene Units as Strong D-A Components\*](#)  
P. J. Skabara, I. M. Serebryakov, I. F. Perepichka, N. S. Sariciftci, H. Neugebauer, A. Cravino  
Macromolecules 34 (2001), 2232-2241
27. [\*Photophysical Properties and Optoelectronic Device Applications of a Novel Naphthalene-vinylene Type Conjugated Polymer\*](#)  
G. Zerza, B. Röthler, N.S. Sariciftci, R. Gomez, J.L. Segura, N. Martin  
Journal of Physical Chemistry B Vol 105/19 (2001), 4099-4104
28. [\*Photoinduced electron transfer in donor/acceptor double cable polymers: Poly-thiophene bearing tetracyano-anthraquino-dimethane moieties\*](#)  
G. Zerza, A. Cravino, H. Neugebauer, N.S. Sariciftci, R. Gómez, J.L. Segura, N. Martin, M. Svensson, M.R. Andersson  
Journal of Physical Chemistry A Vol 105, Nr17 (2001), 4172-4176
29. [\*Sensitization of Photoconductive Polyimides for Photovoltaic Applications\*](#)  
D. Mühlbacher, C. J. Brabec, N. S. Sariciftci, B. V. Kotov, V. I. Berendyaev, B. M. Rumyantsev, J. C. Hummelen  
Synthetic Metals 121 (2001), 1609-1610
30. [\*Synthesis and Characterization of a Poly\(1,3-dithienylisothianaphthene\) Derivative for Bulk Heterojunction Photovoltaic Cells\*](#)  
D. L. Vangeneugden, D. J. M. Vanderzande, J. Salbeck, P. A. van Hal, R. A. J. Janssen, J. C. Hummelen, C. J. Brabec, S. E. Shaheen, N. S. Sariciftci  
Journal of Physical Chemistry B Vol 105 (2001), 11106-11113
31. [\*Influence of Disorder on the Photoinduced Excitations in Phenyl Substituted Polythiophenes\*](#)  
C. J. Brabec, C. Winder, M.C. Scharber, N. S. Sariciftci, J. C. Hummelen, M. Andersson  
Journal of Chemical Physics Vol 115 (2001) Nr. 15, 7235-7244
32. [\*Origin of the Open Circuit Voltage in Plastic Solar Cells\*](#)  
C. J. Brabec, A. Cravino, D. Meissner, N. S. Sariciftci, T. Fromherz, M. Minze, J. C. Hummelen, L. Sanchez  
Advanced Functional Materials 11 (2001) No. 5, 374-380
33. [\*Tracing photoinduced electron transfer process from a polymer chain to a fullerene moiety in real time\*](#)  
C.J.Brabec, G. Zerza, N.S.Sariciftci, G.Cerullo, S.DeSilvestri, S.Luzatti, J.C.Hummelen  
Chemical Physics Letters 340 (2001), 232-236

34. [\*An In Situ Spectroelectrochemical Study on the Reduction of Thin Fullerene Films\*](#)  
C.Kvarnström, H.Neugebauer, H.Kuzmany, H.Sitter, N.S. Sariciftci  
Journal of Electroanalytical Chemistry 511 (2001) 13-19
35. [\*Heteroepitaxial growth of organic small molecules on mica: detailed crystallographic characterisation\*](#)  
H. Plank, R. Resel, S. Purger, J.Keckes, A. Thierry, B. Lotz, A. Andreev, N.S. Sariciftci, H. Sitter  
Physical Review B Vol 64 (2001) 235423/1-5
36. [\*Spectroscopy on polymer-fullerene composites and photovoltaic cells\*](#)  
V. Dyakonov, D. Godovsky, J. Parisi, C.J. Brabec, N.S. Sariciftci, J.C. Hummelen, J.De Ceuster, E. Goovaerts  
Synthetic Metals 121 (2001), 1529-1532
37. [\*Electrochemical synthesis and redox processes of poly\(paraphenylene vinylene\) An in situ FTIR-attenuated total reflectance and electrochemical quartz crystal microbalance study\*](#)  
P. Damlin, C. Kvarnström, H. Neugebauer, A. Ivaska  
Synthetic Metals 123 (2001) 141-148
38. [\*Tip Effects in the Scanning Tunneling Microscopy of Semiconductor Electrodes\*](#)  
R. Hiesgen, D. Meissner, W. Schmickler  
Surface Science 479 (2001) 183-190
39. [\*Photovoltaics of interconnected networks\*](#)  
D. Meissner, J. Rostalski  
Synthetic Metals Vol 121 (2001) 1551-1552
40. [\*Bericht zur Lage der Chemiewaffenkonvention \(OPCW\): Weltweites Abrüstungsabkommen in der \(Realisierungs-\) Krise\*](#)  
D. Meissner, A. Hädicke, R. Braun  
Nachrichten aus der Chemie 49 (2001) 1416-1418
41. [\*Temperature and Irradiance effects on the photovoltaic parameters of a fullerene/conjugated polymer solar cell\*](#)  
E. A. Katz, D. Faiman, Y. Cohen, F. Padinger, C. Brabec, N.S. Sariciftci  
SPIE Proceedings Vol 4108 (2001) 117-124
42. [\*Temperature dependence for the photovoltaic device parameters of polymer-fullerene solar cells under operating conditions\*](#)  
E. A. Katz, D. Faiman, S. M. Tuladhar, J. M. Kroon, M. M. Wienk, T. Fromherz, F. Padinger, C. Brabec, N.S. Sariciftci  
Journal of Applied Physics, Vol 90, No 10 (2001), 5343-5350
43. [\*Electrical Admittance Studies of Polymer Photo-Voltaic Cells\*](#)  
V. Dyakonov, J. Meyer, J. Parisi, C. J. Brabec, N. S. Sariciftci, J. C. Hummelen  
Synthetic Metals, Vol 124 (2001) 103-105
44. [\*CuInSe<sub>2</sub>/Polypyrrole Photovoltaic Structure Prepared by Electrodeposition\*](#)  
S. Bereznev, J. Kois, E. Mellikov, A. Öpik, D. Meissner  
17th EPSE Conference Proceedings, James & James Ltd, London (2001)
45. [\*Trapping Light in Organic Plastic Solar Cells with integrated Diffraction Gratings\*](#)  
M. Niggemann, B. Bläsi, A. Gombert, A. Hinsch, H. Hoppe, P. Lalanne, D. Meissner, V. Wittwer  
17th EPSE Conference Proceedings, James & James Ltd, London (2001)

**46. CIS Plastic Solar Cells**

E. Arici, H. Hoppe, A. Reuning, N.S. Sariciftci, D. Meissner  
17th EPSE Conference Proceedings, James & James Ltd, London (2001)

**47. Photoinduced Electron Transfer in Donor/Acceptor Double Cable Polymers**

A. Cravino, G. Zerza, H. Neugebauer, S. Bucella, M. Maggini, M. Svensson, M. Andersson, N.S. Sariciftci  
Fullerenes for the New Millennium, Vol 11 The Electrochemical Society, Washington, DC, Spring 2001, 94 – 100

**48. Photoinduced electron transfer in solid C60 donor/acceptor complexes**

D.V. Konarev, G. Zerza, M.C. Scharber, N.S. Sariciftci, R.N. Lyubovskaya  
Synthetic Metals, Vol 121 (2001) 1127-1128

**49. Polymer Fullerene Networks for Photovoltaic Applications**

I. Riedel, V. Dyakonov, J. Parisi, C. Brabec, N.S. Sariciftci, J. Hummelen  
17th EPSE Conference Proceedings, James & James Ltd, London (2001)

**50. Electronic Properties of Polymer-fullerene Solar Cells studied with Light-induced Electron Spin Resonance and Admittance Spectroscopy**

V. Dyakonov, I. Riedel, C. Deibel, J. Parisi, C. Brabec, N.S. Sariciftci, J. Hummelen  
17th EPSE Conference Proceedings, James & James Ltd, London (2001)

**51. Low temperature recombination kinetics of photoexcited, persistent charge carriers in conjugated polymer/fullerene composite films**

N.A. Schultz, M.C. Scharber, C.J. Brabec, N.S. Sariciftci  
Physical Review B Vol 64 Nr 24 (2001) 245210-1 – 7

**52. Fullerenes as Functional Moieties in Conjugated Polymers: Towards Donor-Acceptor Double Cable Polymeric Materials**

H. Neugebauer, A. Cravino, G. Zerza, M. Maggini, S. Bucella, G. Scorrano, M. Svensson, M.R. Andersson, N.S. Sariciftci  
AIP Conference Proceedings 591 (2001), p 511, Electronic Properties of Molecular Monostructures

**in print:**

**1. Hybrid Solar Cells based on Dye-sensitized Nanoporous TiO<sub>2</sub> electrodes and conjugated polymers as hole transport materials**

D. Gebeyehu, C. Brabec, N.S. Sariciftci, D. Vangeneugden, R. Kiebooms, D. Vanderzande, F. Kienberger, H. Schindler  
Synthetic Metals, Vol 125 (2002) 279-287

**2. Electrochemical and Photophysical Properties of a Novel Polythiophene with Pendant Fulleropyrrolidine Moieties : Towards “Double Cable” Polymers for optoelectronic Devices**

A. Cravino, G. Zerza, H. Neugebauer, M. Maggini, S. Bucella, E. Menna, M. Svensson, M.R. Andersson, C.J. Brabec, N.S. Sariciftci  
Journal of Physical Chemistry B Vol 106 (2002), 70-76

**3. Infrared spectroscopic investigations of organic polymeric photovoltaic systems**

H. Neugebauer, C. J. Brabec, A. Cravino, Y. Teketel, P. Denk, S. Luzzati, M. Catellani, N. S. Sariciftci  
SPIE proceedings

**4. Structural relationship between epitaxial grown para-sexiphenyl and mica (001) substrates**

H. Plank, R. Resel, A. Andreev, N.S. Sariciftci, H. Sitter

Journal of Crystal Growth

**5. Self-Assembled Growth of Highly Oriented Para-Sexiphenyl Thin Films Controlled by Elastic Strain**

A. Andreev, H. Sitter, C.J. Brabec, P. Hinterdorfer, G. Springholz, N.S. Sariciftci, R. Resel, H. Plank

MRS 2001 Spring Meeting Proceedings

**6. Highly ordered Anisotropic nano-needles in Para-Sexiphenyl films**

A. Andreev, H. Sitter, N.S. Sariciftci, C.J. Brabec, G. Springholz, P. Hinterdorfer, H. Plank, R. Resel, A. Thierra, B. Lotz

Thin Solid Films Vol 403-404 (2002) 444-448

**7. The influence of Materials work function on the open Circuit Voltage of Plastic Solar Cells**

C.J. Brabec, A. Cravino, D. Meissner, N.S. Sariciftci, M.T. Rispens, L. Sanchez, J.C. Hummelen, T. Fromherz

Thin Solid Films 403-404 (2002) 368-372

**8. Sensitization of Low Bandgap Polymer bulk heterojunction Solar Cells**

C. Winder, G. Matt, J.C. Hummelen, R.A.J. Janssen, N.S. Sariciftci, C.J. Brabec

Thin Solid Films, Vol 403-404 (2002) 373-379, E-MRS Strassbourg 2001

**9. A comparison between state-of-the-art 'gilch' and 'sulphinyl' synthesised MDMO-PPV / PCBM bulk hetero-junction solar cells**

T. Munters, T. Martens, L. Goris, V. Vrindts, J. Manca, L. Lutsen, W. De Ceuninck, D.

Vanderzande, L. De Schepper, J. Gelan, N. Sariciftci, C. Brabec

Thin Solid Films, Vol 403-404 (2002) 247-251

**10. Synthesis and electropolymerisation of 3', 4'-Bis(alkylsulfanyl)terthiophenes and the significance of the fused dithiin ring in 2,5-Dithienyl-3,4-ethylenedithiophene (DT-EDTT)**

C. Pozo-Gonzalo, T. Khan, J.J.W. McDouall, P.J. Skabara, D.M. Roberts, M.E. Light, S.J. Coles, M.B. Hursthouse, H. Neugebauer, A. Cravino, N.S. Sariciftci

Journal of Materials Chemistry

**11. Photoinduced electron Transfer from a Dithieno Thiophene-based Polymer to TiO<sub>2</sub>**

S. Luzzati, M. Basso, M. Catellani, D. Gebeyehu, N.S. Sariciftci, C.J. Brabec

Thin Solid Films 403-404 (2002) 52-56, E-MRS Strassbourg 2001

**12. Solid-State organic/inorganic Hybrid Solar Cells based on conjugated Polymers and Dye-sensitized TiO<sub>2</sub> Electrodes**

D. Gebeyehu, C.J. Brabec, N.S. Sariciftci

Thin Solid Films 403-404 (2002) 271-274

**13. Effect of LiF/metal electrodes on the performance of plastic solar cells**

C. Brabec, S. Shaheen, C. Winder, P. Denk, N.S. Sariciftci

Applied Physics Letters Vol 80, (2002)

**14. Positive and Negative Charge Carriers in Doped or Photoexcited Polydithienothiophenes: a Comparative Study Using Raman, Infrared and Electron Spin Resonance Spectroscopy**

A. Cravino, H. Neugebauer, S. Luzzati, M. Catellani, A. Petr, L. Dunsch, N.S. Sariciftci

Journal of Physical Chemistry B

## **submitted:**

### ***1. Morphology Dependent Photoexcitation Mechanism in Substituted Polythiophenes Studied by Magnetic Resonance***

M. C. Scharber, N. Schultz, Christoph J. Brabec, Mats Andersson, N. Serdar Sariciftci  
Physical Review B

### ***2. Effects of Inserting Highly Polar Salts between the Cathode and Active Layer of Bulk Heterojunction Photovoltaic devices***

S.E. Shaheen, C.J. Brabec, N.S. Sariciftci, G.E. Jabbour

### ***3. Dependence of field-effect hole mobility of PPV-based polymer films on the spin-casting solvent***

W. Geens, J. Poortmans, S. Shaheen, C. Brabec, N.S. Sariciftci, B. Wessling  
Journal of Applied Physics

### ***4. Dual Function of a Low-Bandgap Semiconducting Polymer: Photoactive Devices and Infrared Emitting Diodes***

C. Brabec, C. Winder, N.S. Sariciftci, J. Hummelen, A. Dhanabalan, P. van Hal, R. Janssen  
Journal of Applied Physics

## **Patente:**

### ***1. Photovoltaische Zelle I***

Sariciftci et al  
Österreichische Patenmeldung 15 A 733 /2000, PCT/AT 01 128/2001, pending

### ***2. Photovoltaische Zelle II***

Sariciftci et al  
Österreichische Patenmeldung 15 A 734 /2000, PCT/AT 01 129/2001, pending

### ***3. Photovoltaische Zelle III***

Sariciftci et al  
Österreichische Patenmeldung 15 A 735 /2000, PCT/AT 01 130/2001, pending

### ***4. Photovoltaische Zelle IV***

Sariciftci et al  
Österreichische Patenmeldung 15 A 1231/2001, pending

### ***5. Kohlenstoffhaltige Schichten, Verfahren zu ihrer Herstellung und ihre Verwendung***

Anatoly I. Kulak, Alexander I. Kokorin, E. V. Shevschenko, Dieter Meissner  
Deutsche Patentanmeldung DE 100 11 316.8 and DE 100 13 323.1, 11. 3. 2000,  
pending

### ***6. Schaum, Verfahren zur Herstellung und Verwendung von Schaum***

Anatoly I. Kulak, D. G. Shchukin, D. V. Sviridov, Dieter Meissner  
Deutsche Patentanmeldung DE 100 11 314.1 and DE 100 13 237.5, 11. 3. 2000, pending

### ***7. Monokornmembranmaske***

Dieter Meissner, Niklas Zaitzev, Enn Mellikov, Mare Altosaar, Tiit Varema  
DE 199 14 810 (Forschungszentrum Jülich), PCT-Application 23. 2. 2000, pending

**7. Method and Device for Testing the Quality of a Sheet-Like Element Comprising a Membrane**

Dieter Meissner, Herrmann Kabs

US 6,224,746 B1, May 1, 2001

**8. "Solarzelle mit gestapelten Molekülen, Verfahren zu deren Herstellung und zu deren Betrieb"**

Klaus Kohrs, Dieter Meissner

Deutsche Patentanmeldung (Forschungszentrum Jülich) 14. August 1998

DE 198 37 019.9-33, erteilt 24. Mai 2001

**9. "Verfahren zur Regelung der Brennstoffkonzentration in einem Alkohol oder Ether als Brennstoff und Wasser enthaltenden Brennstoffgemisch einer Brennstoffzelle und Brennstoffzellensystem"**

Dieter Meissner, Hans-Friedrich Oetjen, Jürgen Mergel

Deutsche Patentanmeldung (Forschungszentrum Jülich) 3. November 1998

DE 198 50 720.8-45, erteilt 22. Juni 2001