Annex graphical content to the ESCORT publishable summary

Project acronym:	ESCORT
Project title:	Efficient Solar Cells Based on Hybrid/Organic Technology
Grant agreement No.:	261920
Project start:	01 September 2010
Project end:	31 August 2014
Reporting period:	01 September 2010- 31 August 2014 (48 months)

Table 1. Members of the ESCORT EU-India consortium.

Participant Number	Participant Organization Name	Participant Short Name	Country
1.(Coordinator-EU)	Consiglio Nazionale delle Ricerche	CNR	Italy
2.	Ecole Polytechnique Federale de Lausanne	EPFL	Switzerland
3.	Fondazione Istituto Italiano di Tecnologia	IIT-IT	Italy
4.	Dyesol UK Ltd.	DSL	United Kingdom
5. (Coordinator-India)	Indian Institute of Chemical Technology	IICT	India
6.	Indian Institute of Technology – Delhi	IIT-IN	India
7.	Sapala Organics Pvt. Ltd.	SOPL	India
8.	Central Electronics Limited	CEL	India

Table 2. List of participants to the ESCORT General meeting in Rome.

N.	Participant	Affiliation
1	Dr. Filippo De Angelis	CNR, Italy
2	Dr. Olivia Bizzarri	CNR, Italy
3	Dr. Anna Amat	CNR, Italy
4	Dr. Chiara Anselmi	CNR, Italy
5	Dr. Edoardo Mosconi	CNR, Italy
6	Dr. Enrico Ronca	CNR, Italy
7	Dr Francesca Cavazzini	CNR, Italy
8	Dr. Saurabh Agrawal	CNR, Italy
9	Dr. Md. K. Nazeeruddin	EPFL, Switzerland
10	Dr. Giuseppe Gigli	IIT, Italy
11	Dr. Michele Manca	IIT, Italy
12	Dr. Luisa De Marco	IIT, Italy
13	Dr. Mervyn de Borniol	Dyesol, UK
14	Dr. L. Giribabu	IICT-Hyderabad, India
15	Dr. Ramanuj Narayan	IICT-Hyderabad, India
16	Dr. Pratyay Basak	IICT-Hyderabad, India

17	Dr. Masami Nakane	SOPL-Hyderabad, India
18	Dr. Vinod K Kaul	CEL-Delhi, India
19	Dr. Viresh Dutta	IIT-Delhi, India

Table 3. List of participants to the ESCORT General meeting in Hyderabad.

N.	Participant	Affiliation
1	Dr. Filippo De Angelis	CNR, Italy
2	Dr. Simona Fantacci	CNR, Italy
3	Dr. Saurabh Agrawal	CNR, Italy
4	Dr. Md. K. Nazeeruddin	EPFL, Switzerland
5	Dr. Michele Manca	IIT, Italy
6	Dr. Luisa De Marco	IIT, Italy
7	Dr. Mervyn de Borniol	Dyesol, UK
8	Dr. L. Giribabu	IICT-Hyderabad, India
9	Dr. Ramanuj Narayan	IICT-Hyderabad, India
10	Dr. J. S. Yadav	IICT-Hyderabad, India
11	Dr. Malapaka Chandrashekaram	IICT-Hyderabad, India
12	Dr. Shymapada Banerjee	SOPL-Hyderabad, India
13	Dr. Vinod K Kaul	CEL-Delhi, India
14	Dr. Viresh Dutta	IIT-Delhi, India

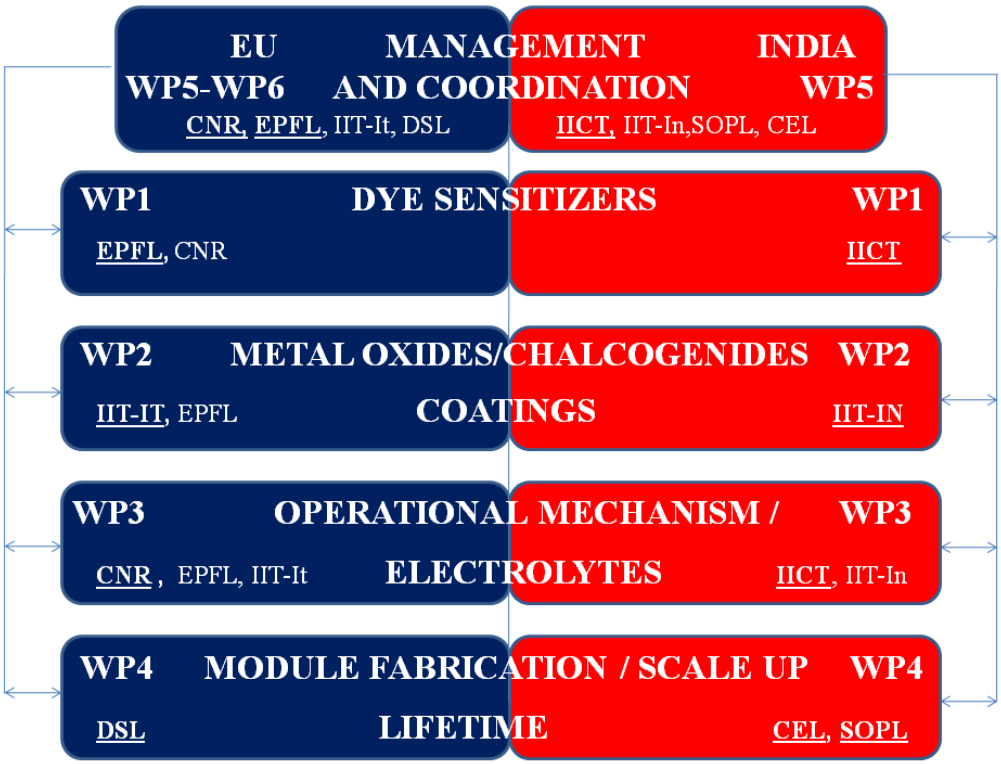
Table 4. List of participants from India and Europe attended the ESCORT Final meeting.

N.	Participant	Affiliation
1	Dr. Filippo De Angelis	CNR, Italy
2	Dr. Md. K. Nazeeruddin	EPFL, Switzerland
3	Dr. Peng Gao	EPFL, Switzerland
4	Dr. Giuseppe Gigli	IIT, Italy
5	Dr. Michele Manca	IIT, Italy
6	Dr. Luisa De Marco	IIT, Italy
7	Dr. Mervyn de Borniol	Dyesol, UK
8	Dr. Hans Desilvestro	Dyesol, UK
9	Dr. L. Giribabu	IICT-Hyderabad, India
10	Dr. Ramanuj Narayan	IICT-Hyderabad, India

Table 5. List of visiting scientists within the ESCORT exchange mobility program.

Name	Affiliation	Host	Period of visit
Dr S.P. Singh	IICT-Hyderabad	DSL	1st August 2014
Dr. Ramanuj Narayan	IICT-Hyderabad	DSL	1st August 2014
Dr L. Giribabu	IICT-Hyderabad	DSL	1st August 2014
Dr. L. Giribabu	IICT-Hyderabad	IIT	24th July 2014
Dr. Ramanuj Narayan	IICT-Hyderabad	IIT	24th July 2014
Dr. S.P. Singh	IICT-Hyderabad	IIT	24th July 2014
Dr. Ramanuj Narayan	IICT-Hyderabad	EFPL	11st May 2014
Dr. Giribabu	IICT-Hyderabad	EFPL	11st May 2014

Dr. Sanjay Kumar Swami	IIT-Delhi	EFPL	1st October to 18th December 2013
Dr. Bhanuprakash Kotamarthi	IICT-Hyderabad	CNR	31st October- 15th November 2013
Dr. Saurabh Agrawal	CNR	IICT	17-21 December 2012
Dr. Viresh Dutta	IIT-Delhi	IIT-IT	23-25 July 2012
Dr. L. Giribabu	IICT-Hyderabad	CNR	27-28 July 2012
Dr. Ramanuj Narayan	IICT-Hyderabad	CNR	27-28 July 2012
Dr. Pratyay Basak	IICT-Hyderabad	CNR	27 -28 July 2012
Dr. Charu Dwivedi	IIT-Delhi	EPFL	7-16 July 2012
Dr. Malapaka Chandrasekharam	IICT-Hyderabad	EFPL	4 -6 May, 2012
Dr. Malapaka Chandrasekharam	IICT-Hyderabad	CNR	19- 22 May, 2012
Dr. Soujanya Yarasi	IICT-Hyderabad	CNR	23-24 May, 2012
Dr. L. Giribabu	IICT-Hyderabad	EFPL	9th December 2011



Scheme 1. ESCORT WP structure and EU/India interdependencies**.**

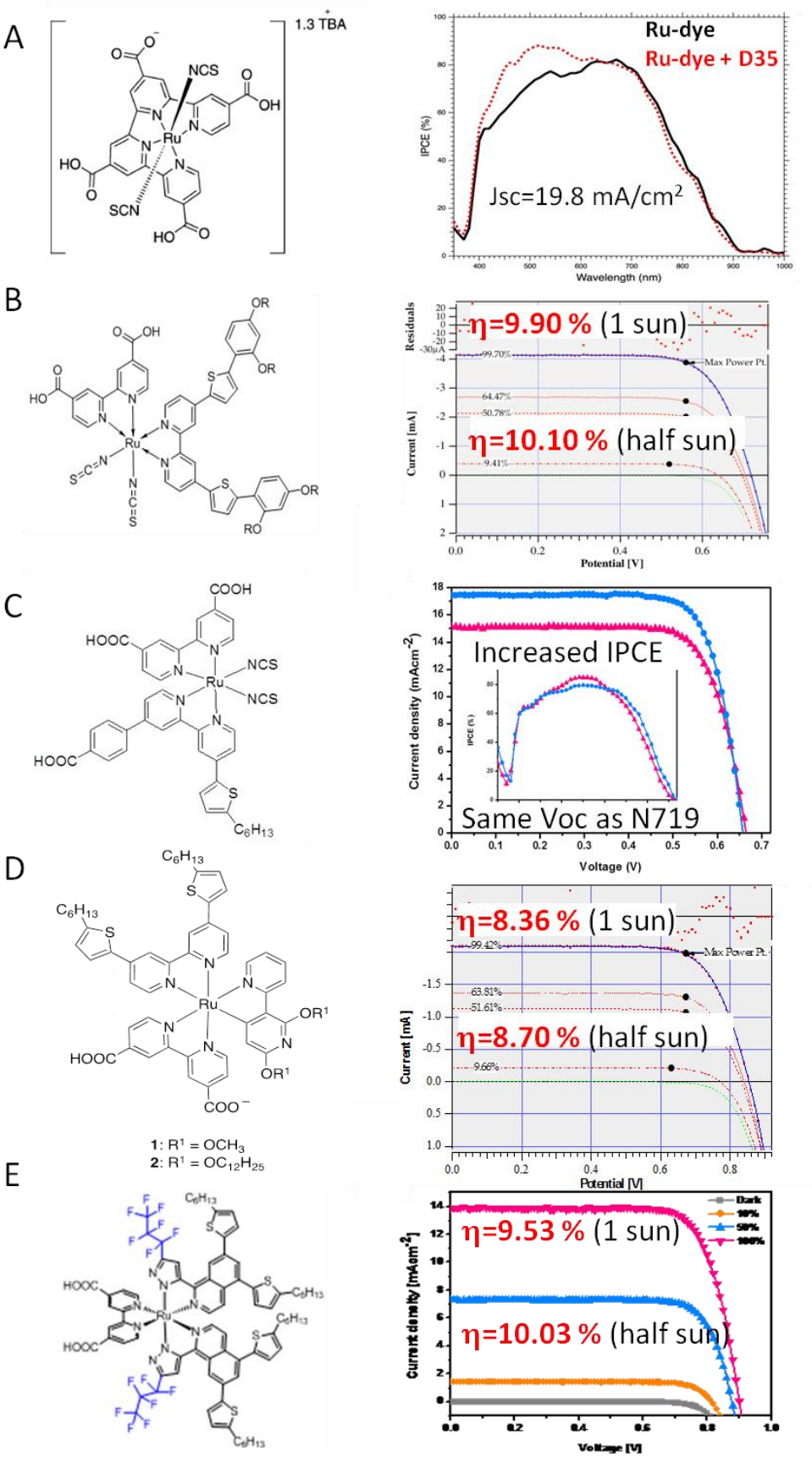


Figure 1. Structures and photovoltaic performances of the most performing ruthenium dyes which have been designed, modeled, synthesized and tested within the first 36 project months. A-C data are obtained with an iodine-based electrolyte, while D-E data are obtained with a cobalt-based electrolyte.

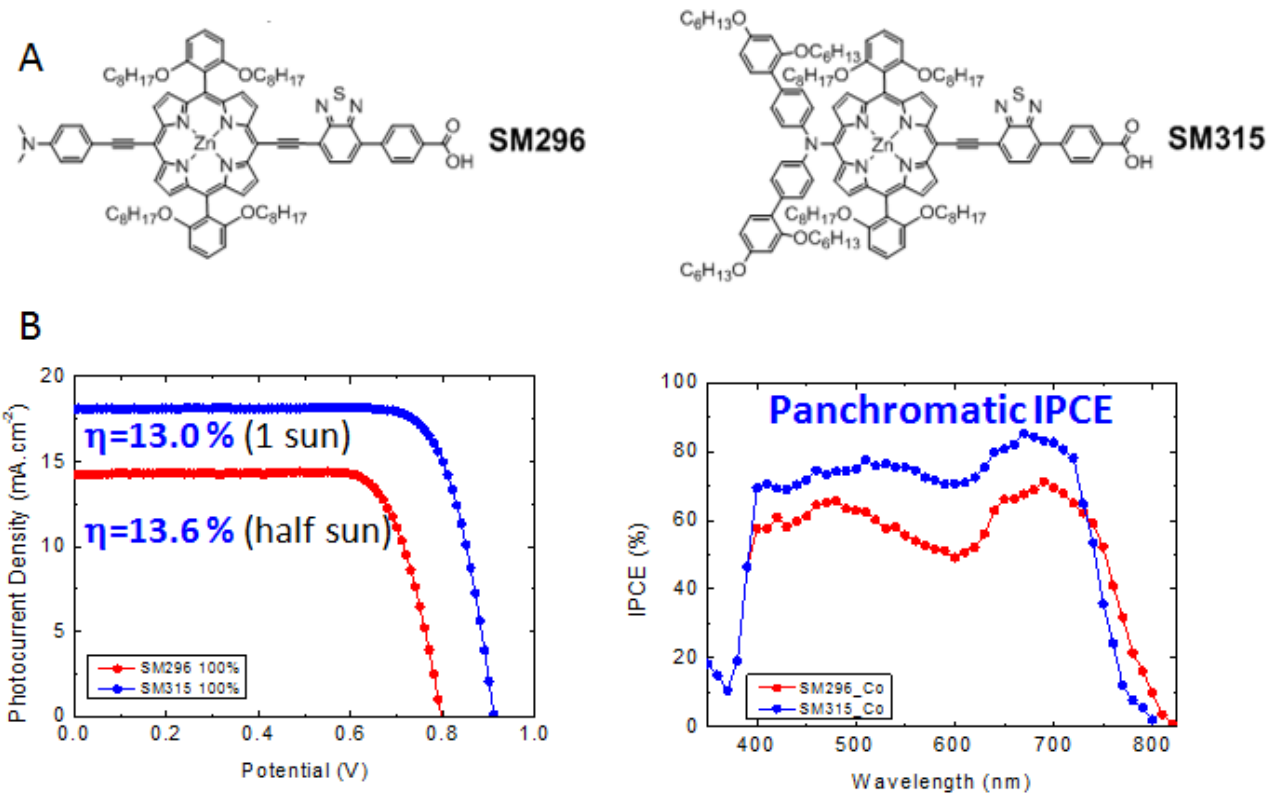


Figure 2. A: Structure of the synthesized panchromatic porphyrin dyes. B (left): IV curves; B (right): IPCE curves. Notice the panchromatic IPCE response of both dyes.

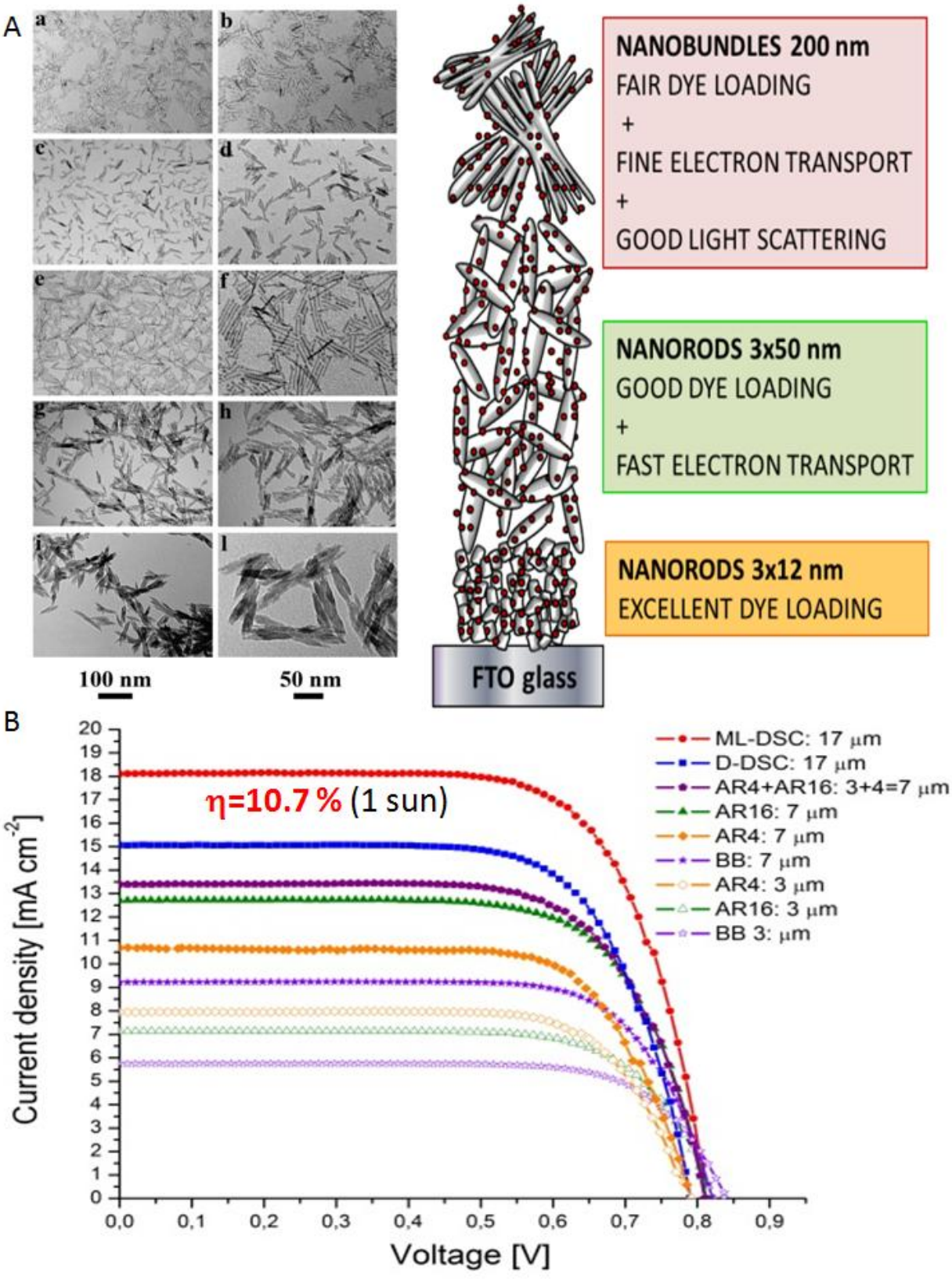


Figure 3. A (left): Low- and high- magnification TEM images of anatase nanorods with different sizes and morphologies employed for the preparation of the photoelectrodes: linear nanorods with varying aspect-ratio, namely AR4-NRs (a,b), AR8 –NRs (c,d) and AR16-NRs (e,f); branched nanocrystals, namely smaller sheaf-like B-NRs (g,h) and large braid-like nanorod bundles, BB-NRs (i,l). A (right): Cross sectional sketch of an engineered three-stacks photoelectrode made by shape-tailored nanorods with complementary features. B: IV curves.

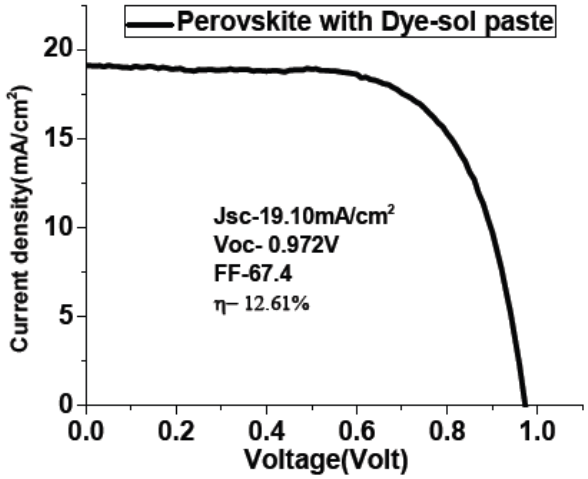


Figure 4. Photocurrent density–voltage (J–V) characteristics of the ss-DSSCs (Perovskite) with Dyesol paste.

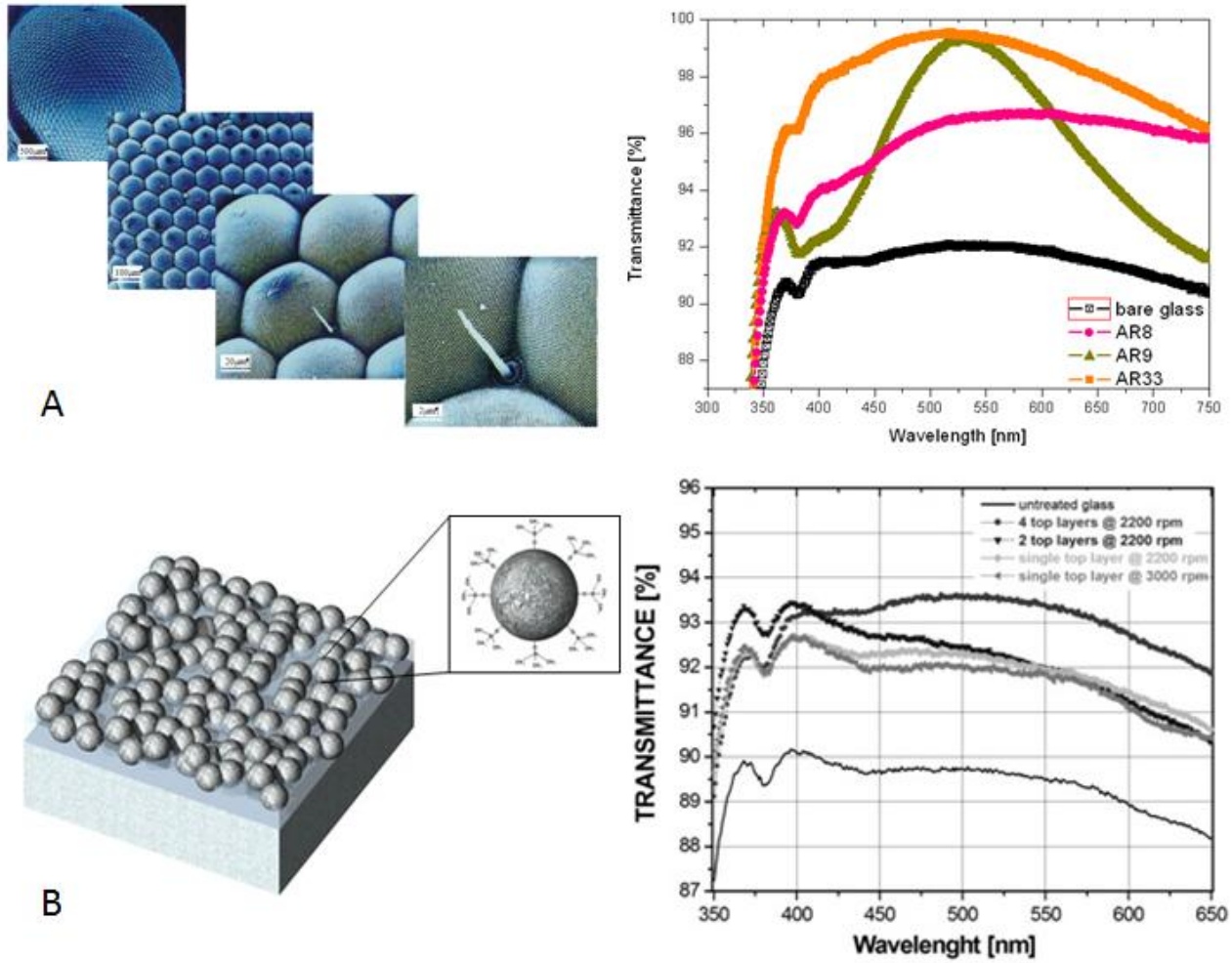


Figure 5. A (left): SEM images of the moth-eye topography at different magnification levels. A (right): a)Transmission spectra of silica coatings on glass substrates obtained from AR8, AR9 and AR33 solutions, dip-coated at a 55mm/min withdrawal rate. B (left): of TMS-silica-nanoparticles-based ultra-hydrophobic coating. B (right): Transmission spectra of glass plates coated with 3%wt TMS-silica-nanoparticles-containing top layer solutions deposited at different spin-coating rates.

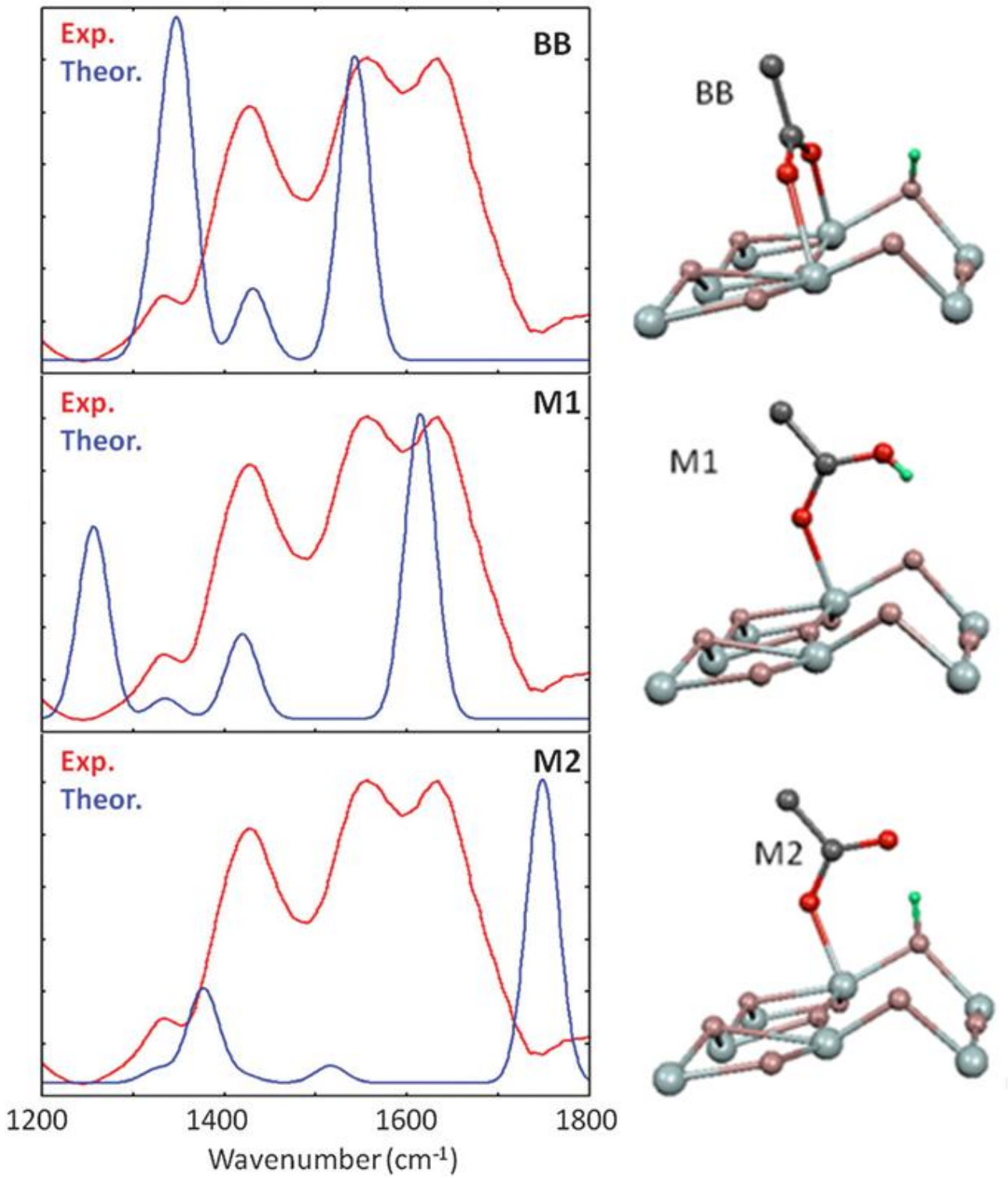


Figure 6. Comparison between the experimental (red) and calculated (blue) IR spectra of AcOH on TiO2 for the BB, M1 and M2 adsorption modes (also shown on the right). The calculated spectra have been rescaled so that the high energy features have the same intensity as the experimental band at 1558 cm^{-1}.

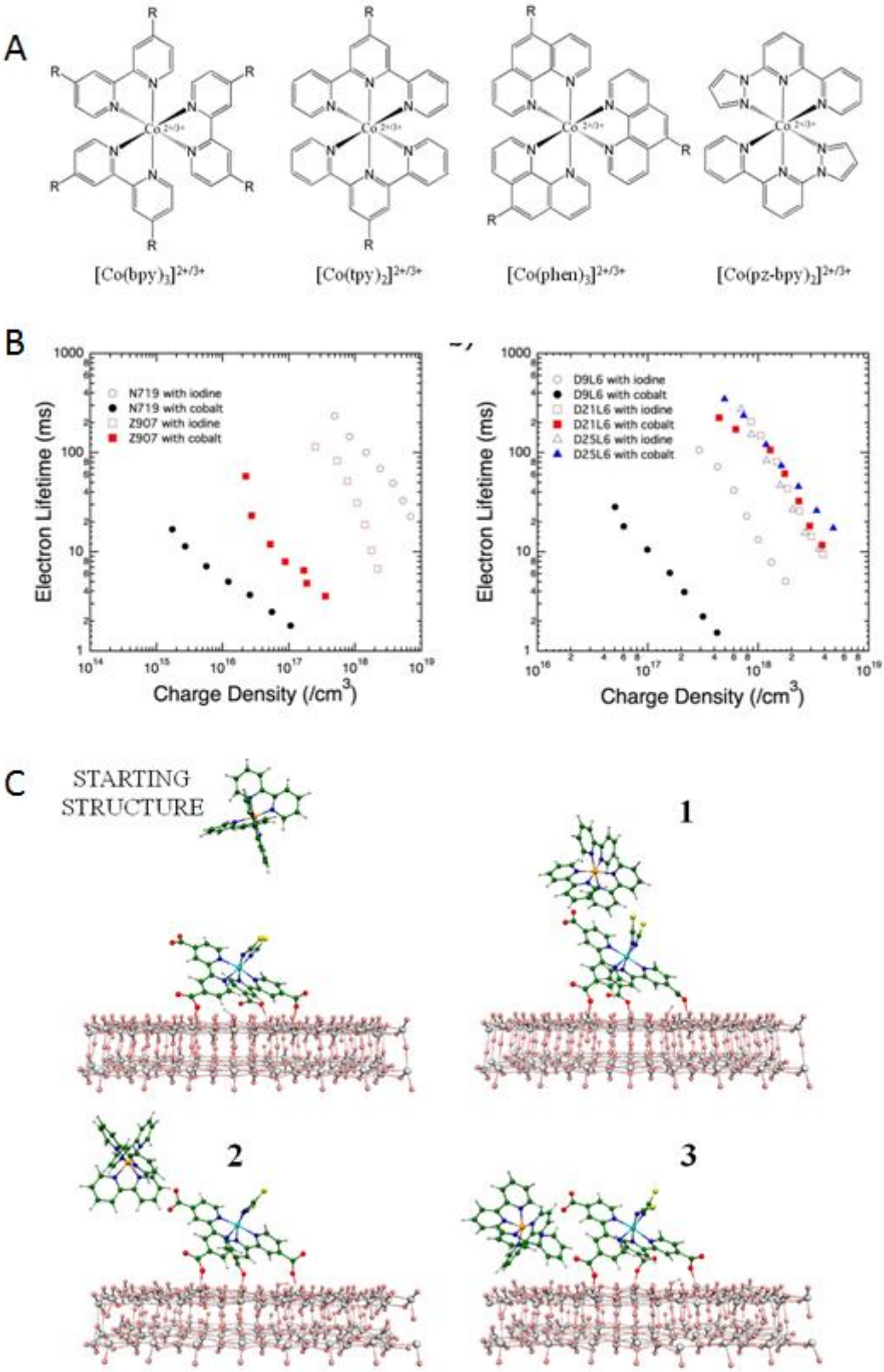
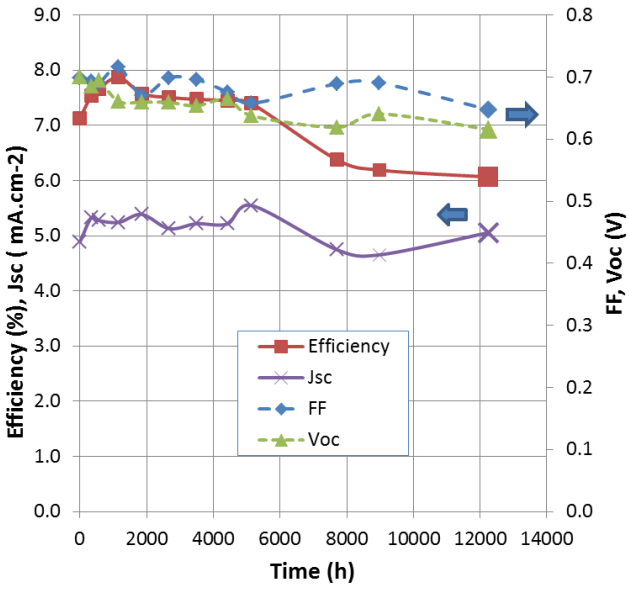


Figure 7. A: Chemical structures of the investigated cobalt complexes. B: Electron lifetime as a function of photo-induced charge density. (a) DSSCs employing N719 (black markers) and Z907 (red markers) and (b) DSCs employing D9L6 (black markers), D21L6 (red markers), and D25L6 (blue markers). Open markers indicate results with iodine-based electrolyte whereas closed markers indicates those with Cobalt electrolyte. C: Representative geometrical structures for the $N719(1H)^{3-}$ @TiO_2/$[Co(bpy)_3]^{3+}$ system extracted from the molecular dynamic simulation.



Time (h)	Efficiency (%)	Jsc (mA•cm^{-2})	Voc (V)	FF
0	7.13	4.89	0.701	0.699
336	7.54	5.33	0.685	0.693
560	7.67	5.28	0.695	0.690
1160	7.87	5.24	0.661	0.716
1856	7.58	5.39	0.660	0.671
2672	7.51	5.13	0.660	0.699
3488	7.48	5.22	0.654	0.697
4424	7.45	5.22	0.665	0.676
5144	7.40	5.55	0.638	0.658
7704	6.38	4.75	0.620	0.690
8976	6.19	4.65	0.641	0.691
12240	6.07	5.06	0.616	0.648
Δ	-14.9%	+3.4%	-12.1%	-7.3%

Figure 8. Plot and data of long term testing of best performing modules.

Figure 9. Group picture from the ESCORT Summer School on DSCs held in Hyderabad on August 8-10 2013.