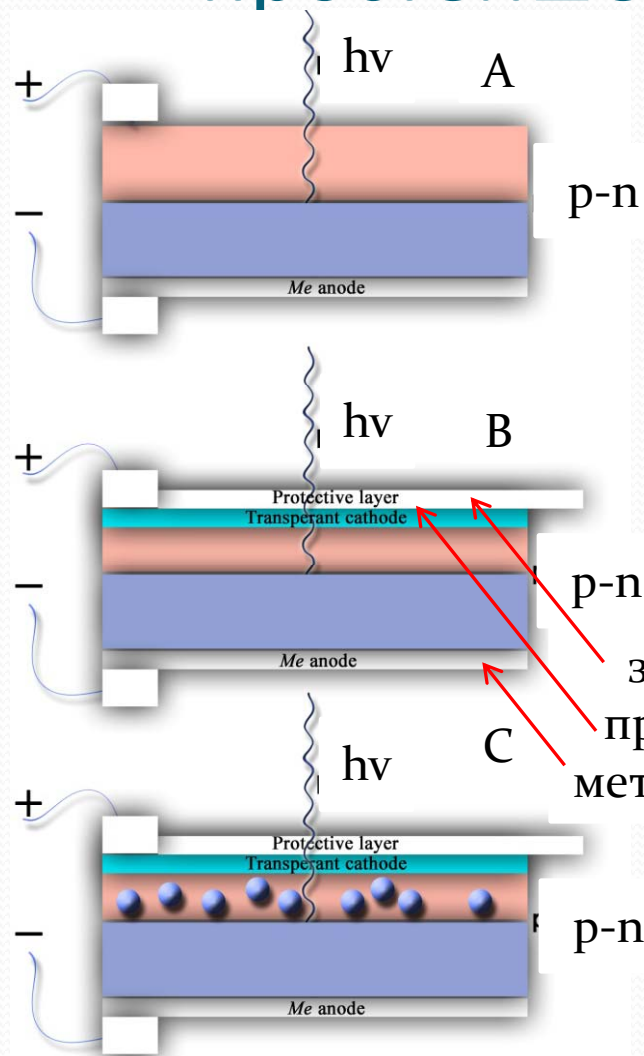


Молекулярная электроника 1

Фотовольтаика, солнечные элементы



Схема и принципы построения простейшего солнечного элемента



защитный слой
прозрачный катод
металлический анод

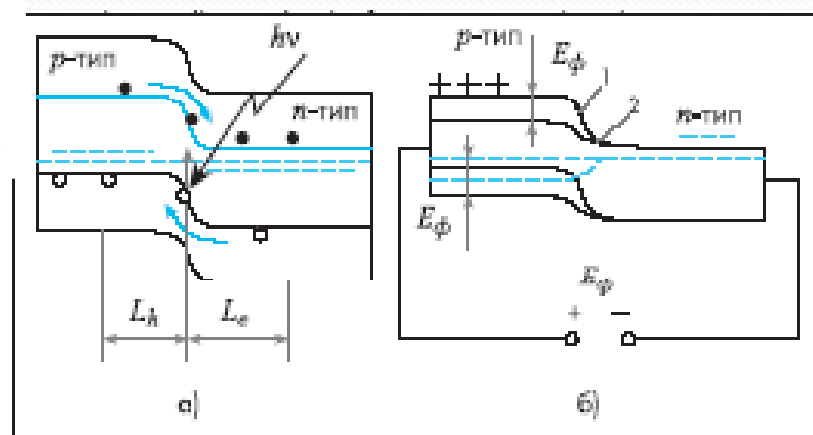
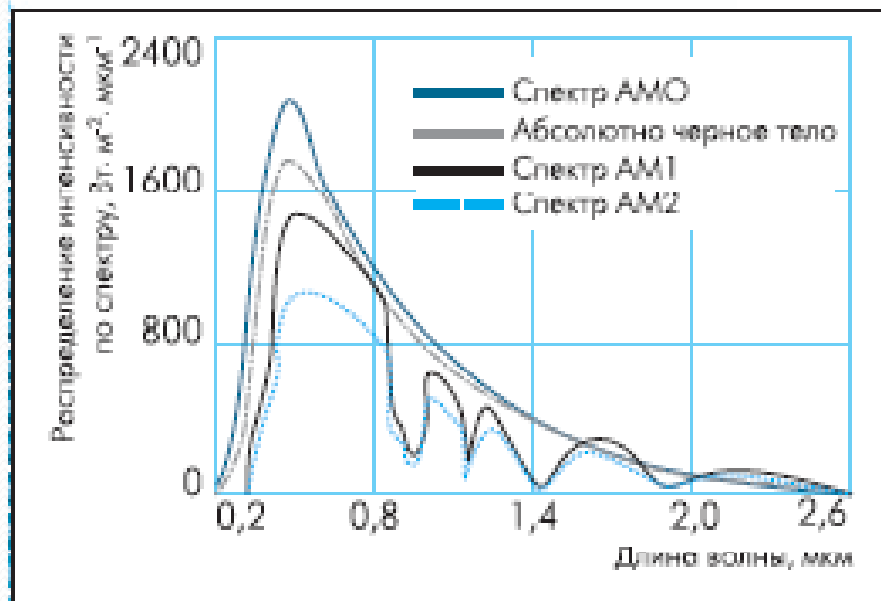
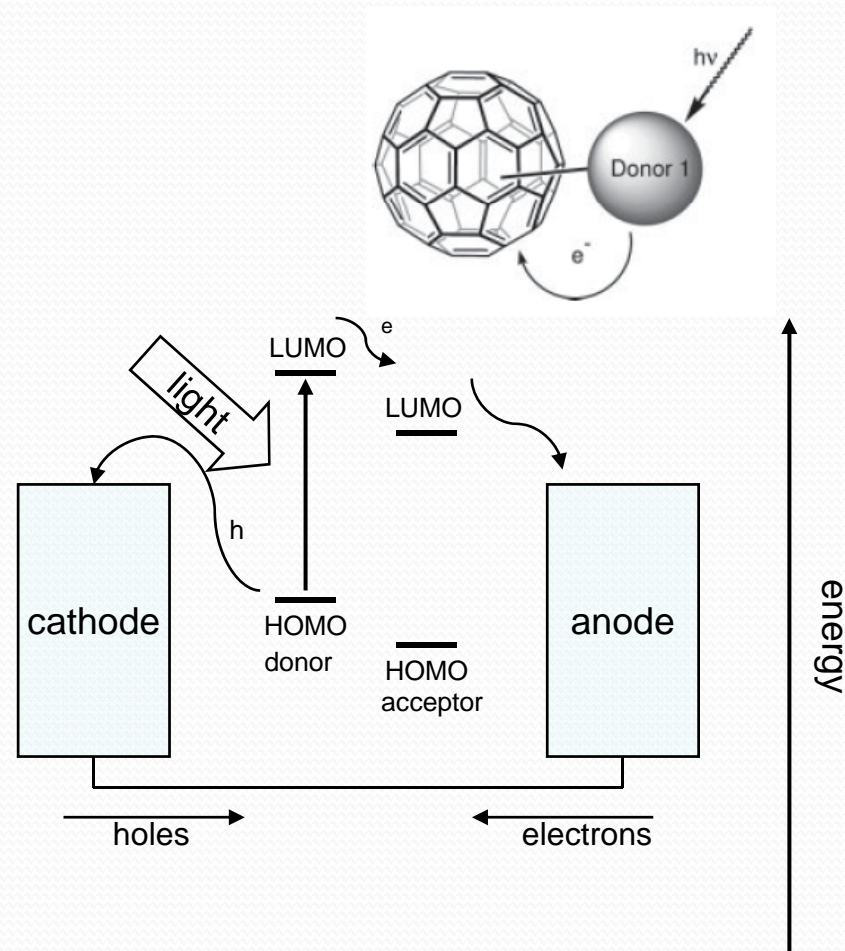
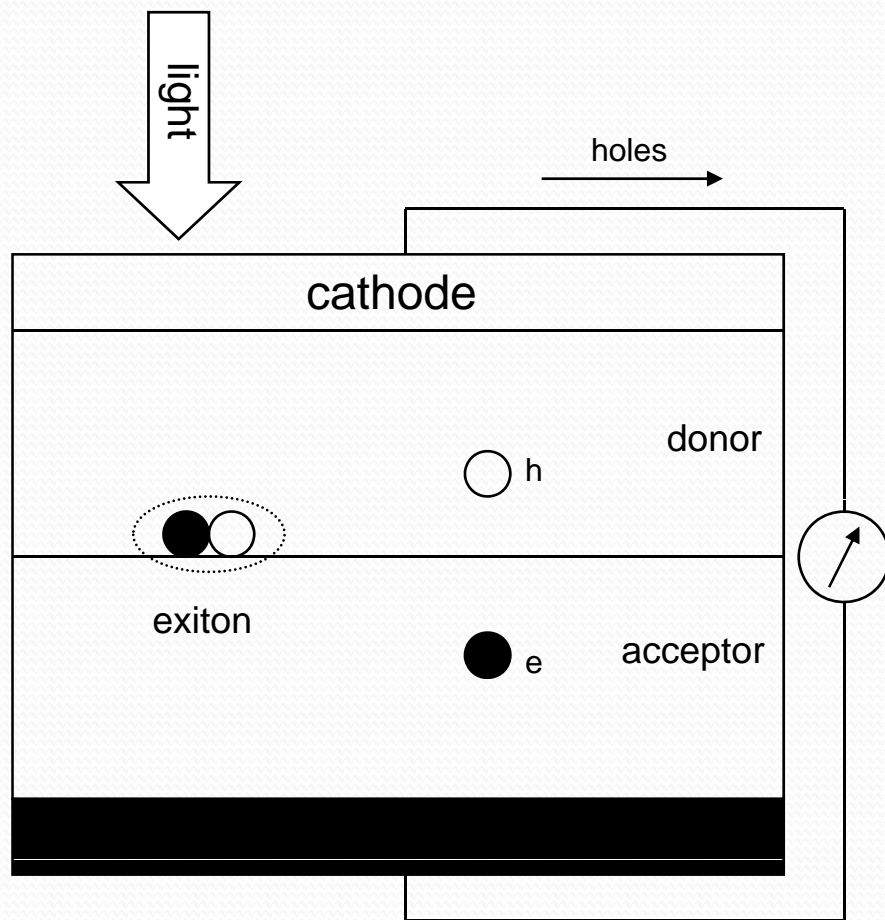
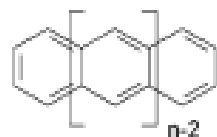


Схема молекулярных орбиталей солнечного элемента



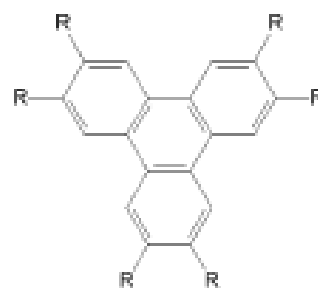
Соединения для молекулярной электроники



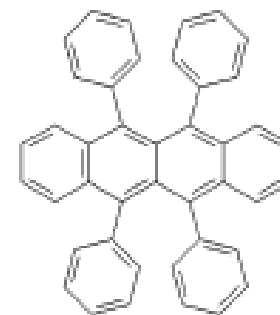
Oligoacenes



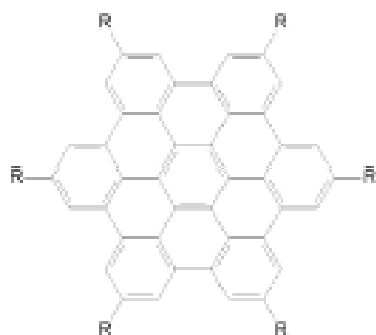
Oligothiophenes



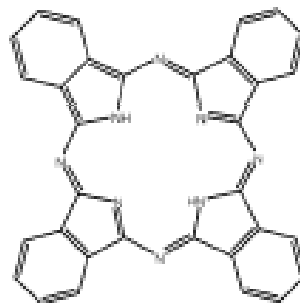
Triphenylene



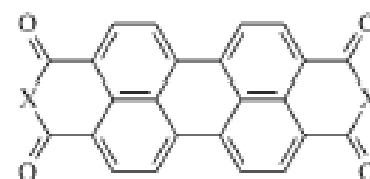
Rubrene



Hexabenzocoronene



Phthalocyanine



PTCDA (X=O)

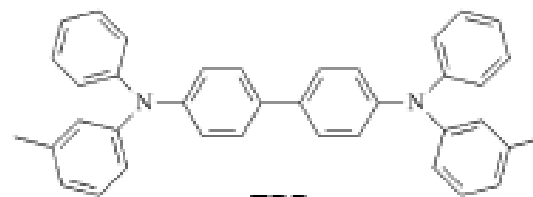
PTCDI (X=NH)



TTF

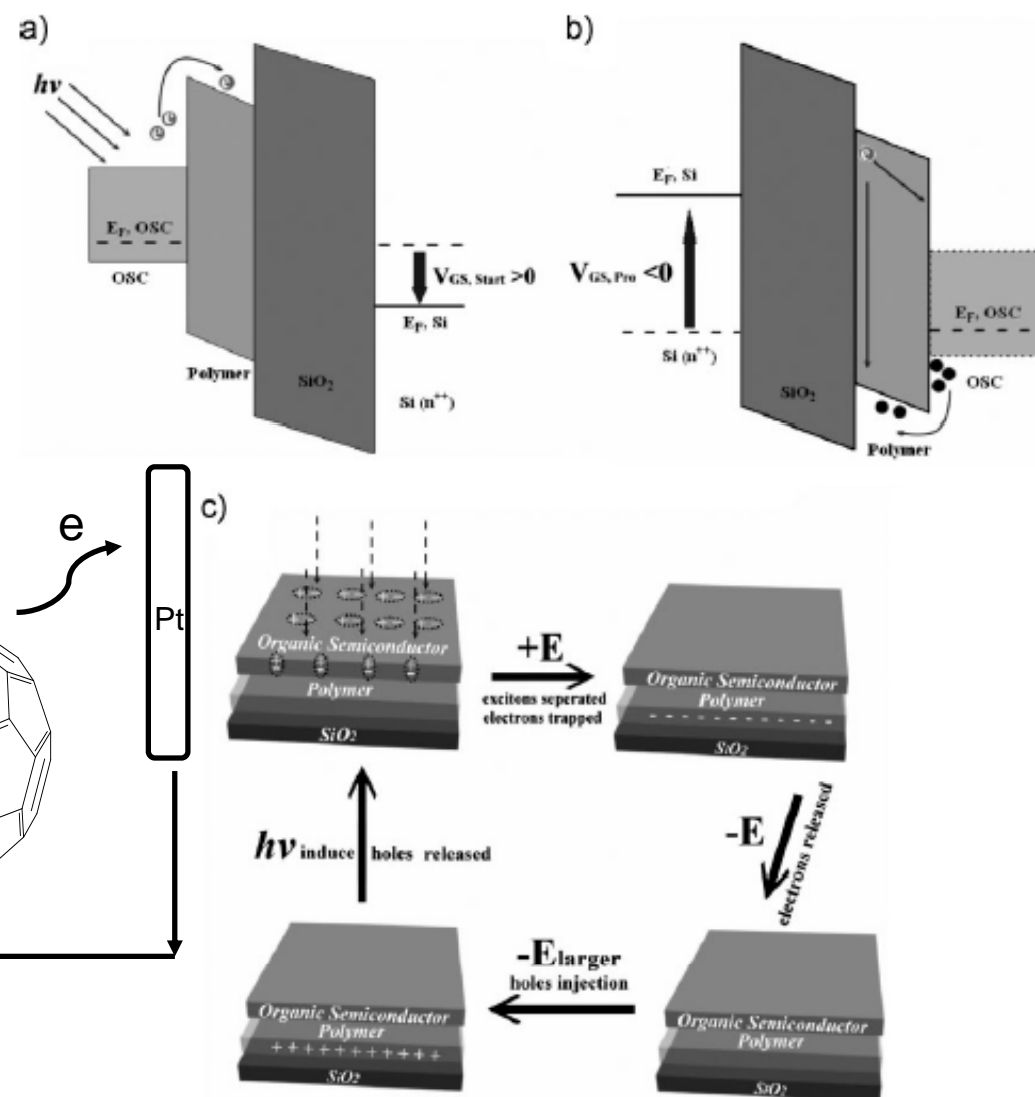
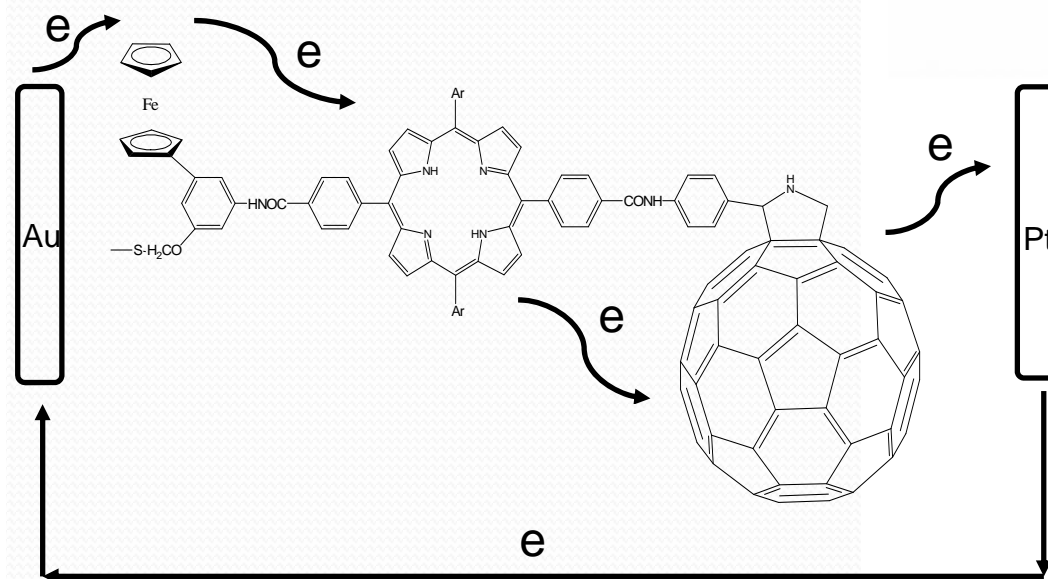


C₆₀

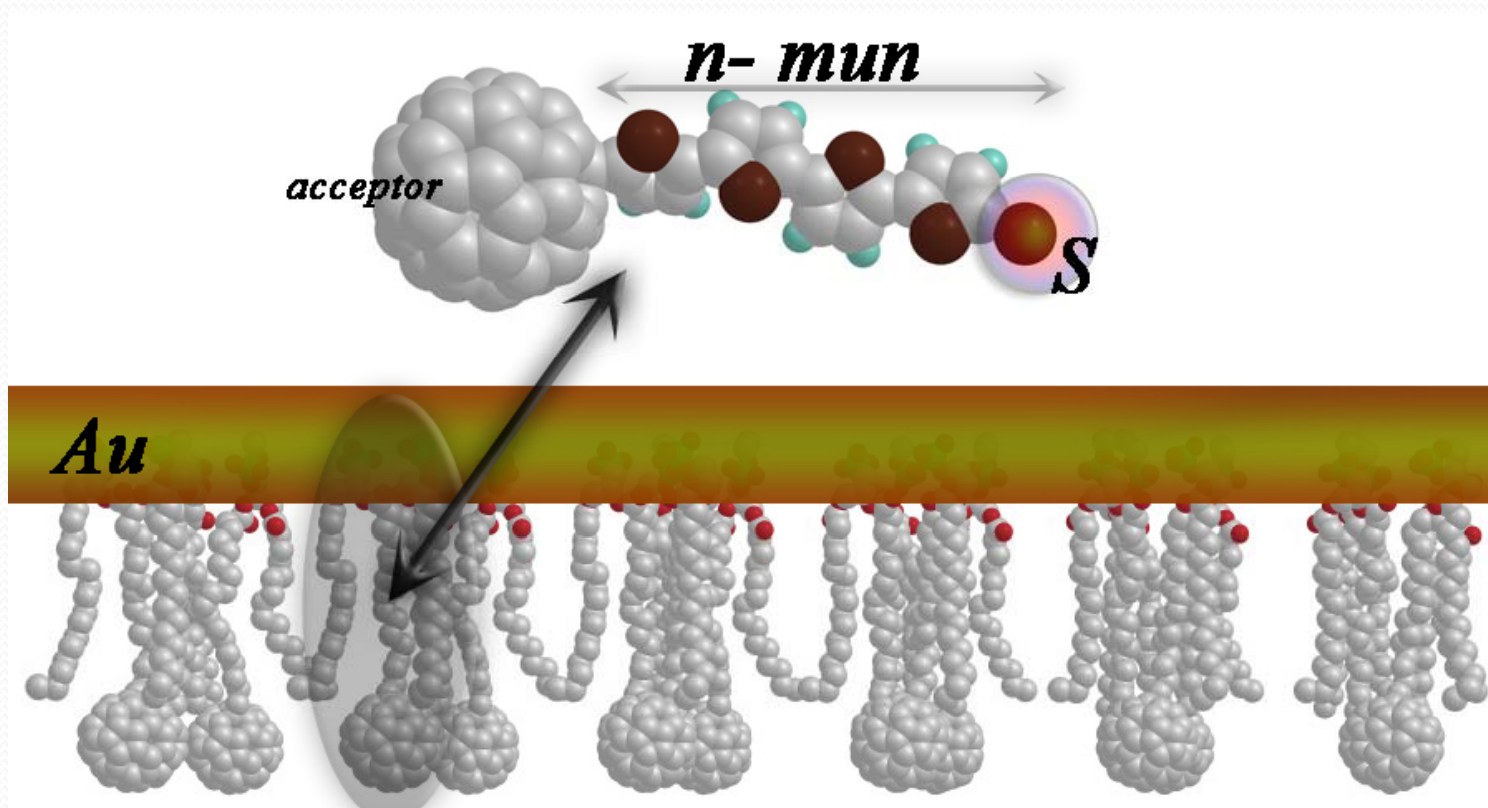


TPD

Схемы переноса заряда



Пример подложки, где фуллерен
выступает в роли акцепторного
фрагмента



Методы исследования

Table 1 Analytical techniques for SAM characterisation

Analytical technique ^a		Ref.	Structural information
<i>General</i>	Contact angle	9	Hydrophobicity and monolayer order
	QCM/SAW	9,19	Changes in mass upon self-assembly
<i>Optical</i>	IR spectroscopy	20	Nature of functional groups and molecular orientation
	UV-Vis absorbance	21	Monolayer Density
	Fluorescence spectroscopy	22	Monolayer Density
	Ellipsometry	23	Layer thickness
<i>Vacuum</i>	SPR	24	Layer thickness
	XPS	21	Elemental composition
	AES	25	Elemental composition
	SIMS	26	Molecular mass of adsorbate
<i>Microscopy</i>	AFM	27	Molecular packing
	STM		Molecular packing
<i>Electrochemical</i>	Cyclic voltammetry	28	Adsorbate layer thickness, order/defects, surface coverage,
	Impedance spectroscopy		Adsorbate layer thickness, order/defects

^a AFM: Atomic Force Microscopy; AES: Auger Electron Spectroscopy; QCM: Quartz Crystal Microbalance; SAW: Surface Acoustic Waves; SIMS: Secondary Ion Mass Spectrometry; SPR: Surface Plasmon Resonance; STM: Scanning Tunneling Microscopy; XPS: X-ray Photoelectron Spectroscopy.