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# **VILAB Project: WUT Progress Information**

Wiesław Kuźmich, Zbigniew Jaworski

Warsaw University of Technology  
Institute of Microelectronics and Optoelectronics

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# Agenda

- ◆ What we have done
- ◆ IMiOVIP Tutorial
- ◆ Future works

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# IMiOCAD Development

(Subtask 2.5)

- ◆ New versions of all IMiOCAD tools  
(versions for Wintel and Unix platforms under development)
- ◆ User's Manuals available for download
- ◆ New technology files for IMiOCAD tools for  
Alcatel C07M and AMS CYE, BYE and CSD processes

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# Fault probability estimation tool

(Subtask 2.6)

- ◆ A tool for estimation of probability of spot defect-related faults in digital standard cells is under development
- ◆ Work is carried out in co-operation with Tallinn TU and Lviv Polytechnic (not VILAB partner)

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# **IMiOVIP - virtual prototyping tool accessible via Internet**

(Subtask 2.6)

- ◆ First simulation tool of **IMiOVIP** - an interactive process and device simulator - is already available for VILAB partners on the Internet (<http://imiovip.imio.pw.edu.pl>)

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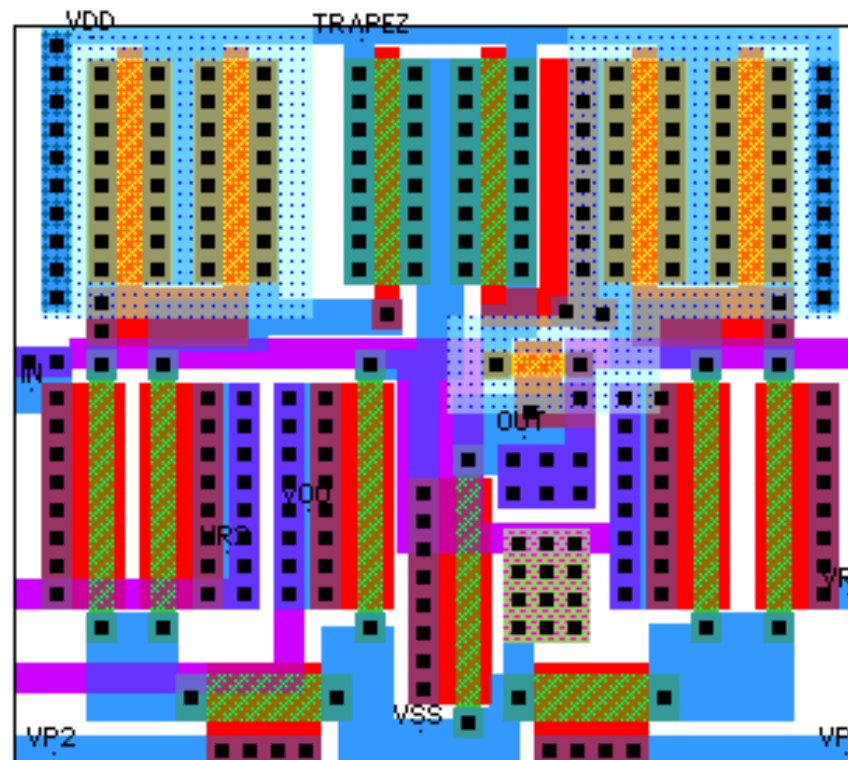
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# IMiOVIP tutorial

- ◆ Run circuit extractor on layout of validated cell
- ◆ Select the devices to be simulated
- ◆ Enter the device dimensions and location
- ◆ Run statistical process/device simulation
- ◆ Obtain results in form of plots

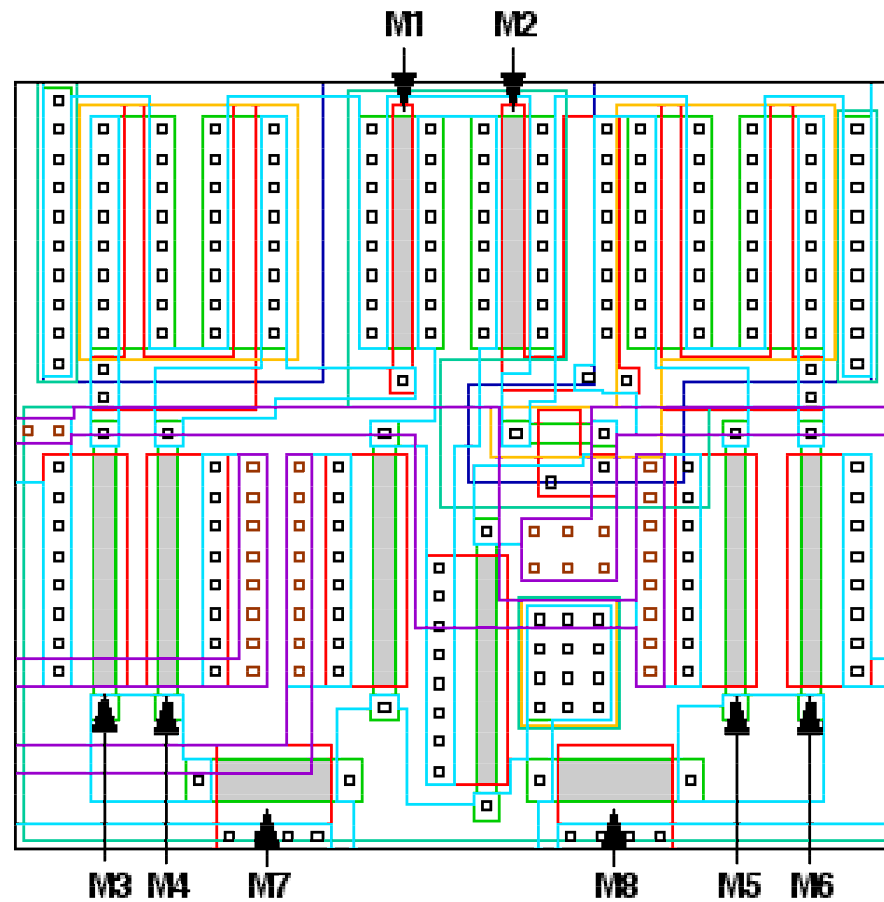
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# Tutorial - layout of validated cell



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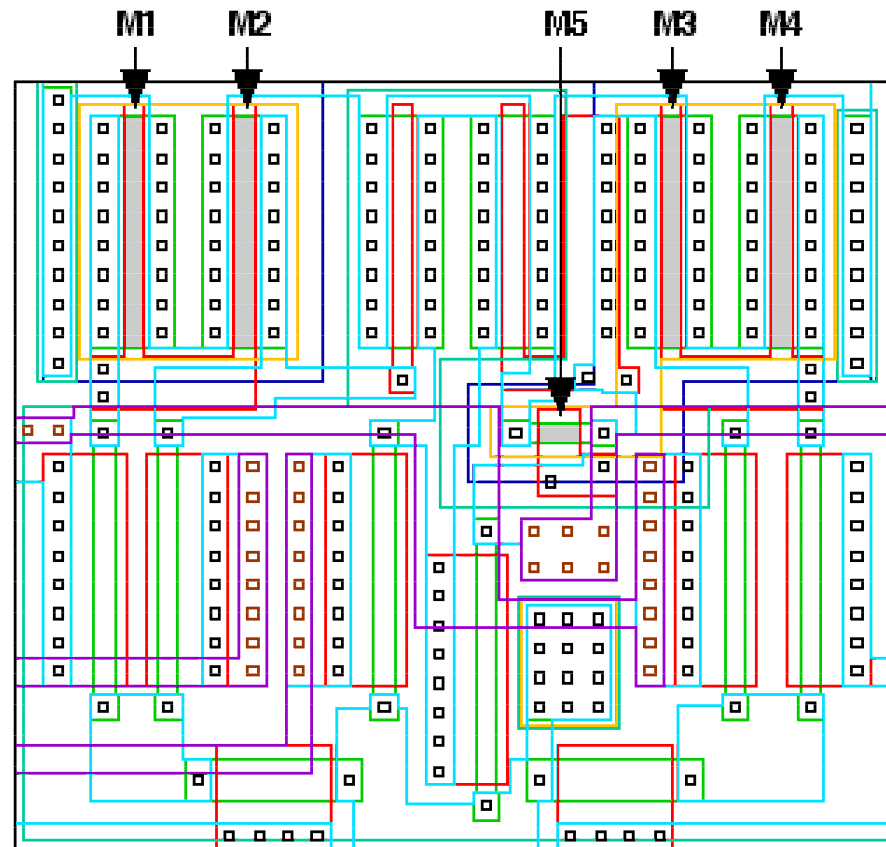
# Tutorial - NMOS transistors extracted





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# Tutorial - PMOS transistors extracted



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# Tutorial - transistor size/location setup

n-MOS (n channel) transistors:

Transistor data :	Width (um) :	Length (um) :	X (um)	Y (um)
Transistor 1: <input checked="" type="checkbox"/>	20.0	2.0	32.25	43.0
Transistor 2: <input checked="" type="checkbox"/>	20.0	2.0	41.75	43.0
Transistor 3: <input checked="" type="checkbox"/>	2.0	20.0	6.75	14.0
Transistor 4: <input checked="" type="checkbox"/>	2.0	20.0	12.25	14.0
Transistor 5: <input checked="" type="checkbox"/>	2.0	20.0	60.75	14.0
Transistor 6: <input checked="" type="checkbox"/>	2.0	20.0	67.25	14.0
Transistor 7: <input checked="" type="checkbox"/>	4.0	10.0	17.25	4.0
Transistor 8: <input checked="" type="checkbox"/>	4.0	10.0	46.5	4.0
Transistor 9: <input type="checkbox"/>	1.0	1.2	0	0

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# Tutorial - process selection

Select CMOS process:

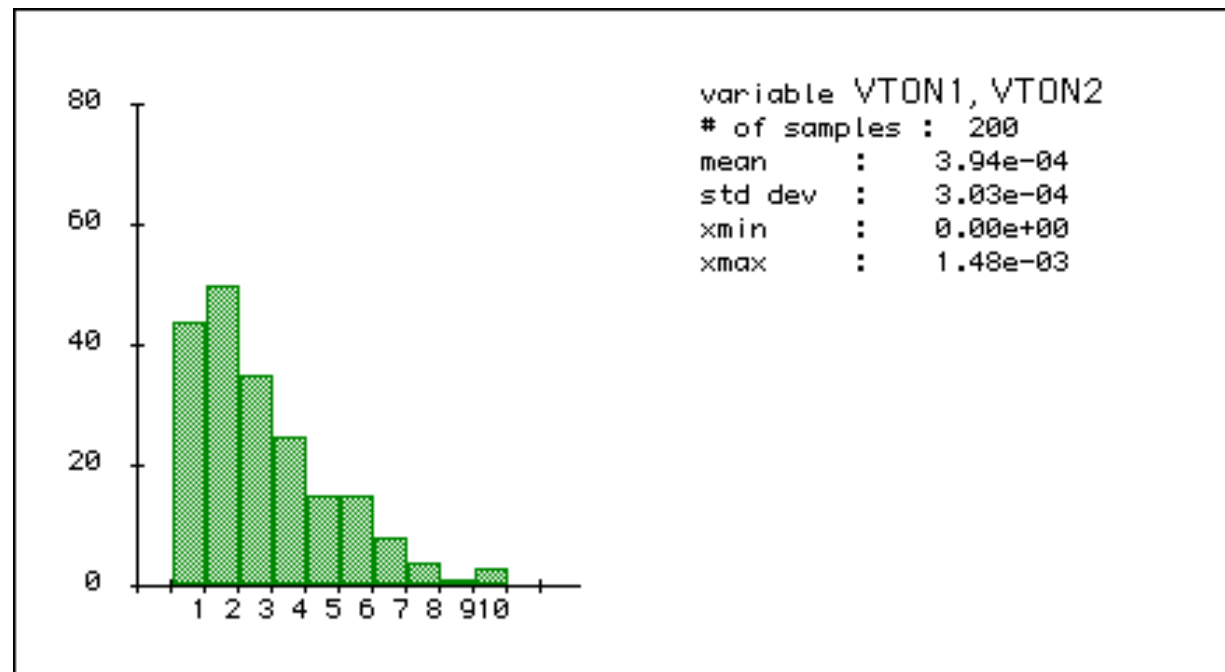
<input checked="" type="radio"/>	CMOS 0.7 micron
<input type="radio"/>	CMOS 0.35 micron

Number of chips to simulate:  (min. 10, max. 200)

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# Tutorial - simulation results



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# Future works

- ◆ Internet-based tutorials for IMiOCAD tools
- ◆ IMiOCAD demo versions for download
- ◆ IMiOVIP development: coupling layout-to-circuit extractor with process simulator
- ◆ IMiOVIP for IET process
- ◆ Improvement of faults probability estimation method