
EDISON

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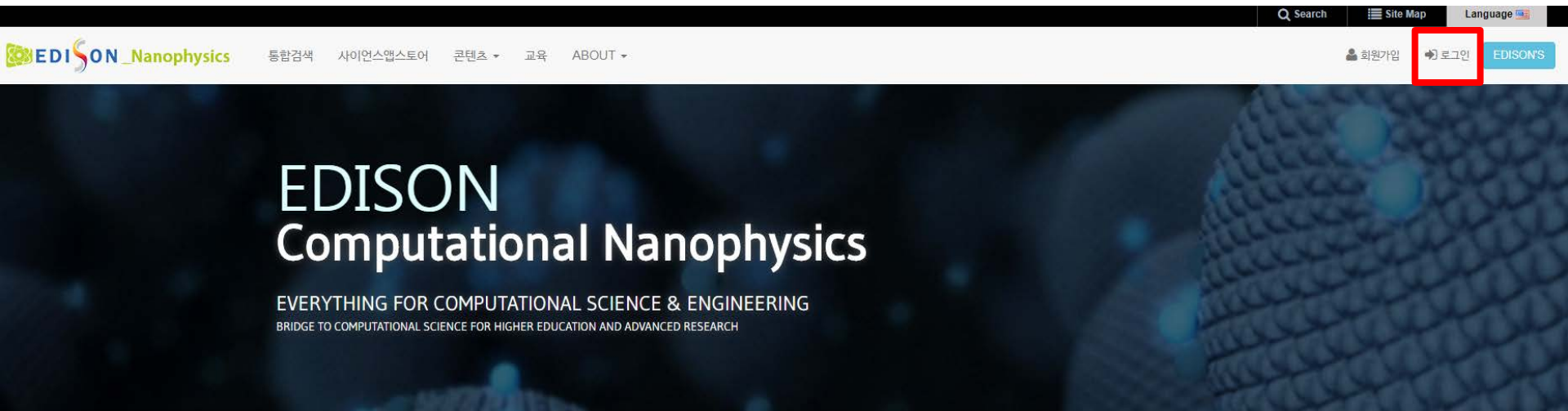
Semiconductor Device Simulation Lab.
School of Electrical Engineering and Computer Science
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NEGF

- Nonequilibrium Green's Function (NEGF)
 - Standard quantum transport simulation technique
 - Unfortunately, due to the time limitation, the NEGF has not been discussed in the lecture.
- Instead, a short exercise is prepared.

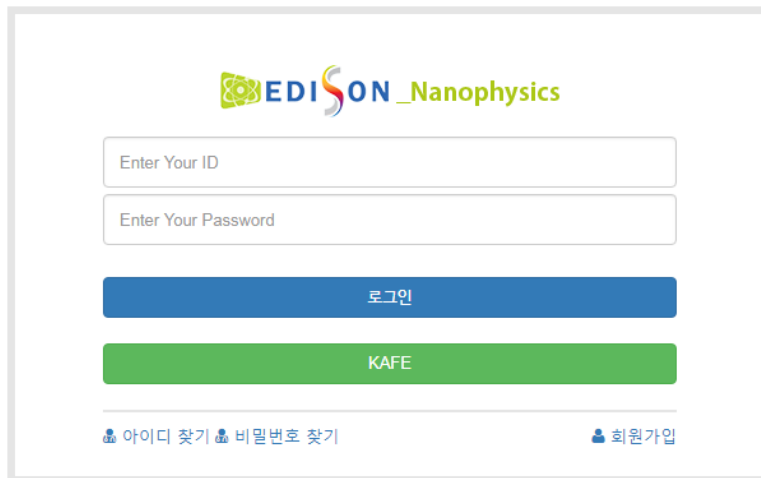
Visit EDISON Nanophysics

- Type “nano.edison.re.kr”
 - You may see it.
 - Then, click “Login”



Login page

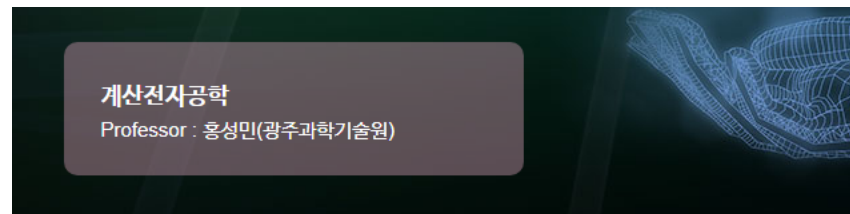
- What is your (pre-defined) ID and password?
 - Your ID: c0835(8digit student id)
 - Your password: Same with your ID
 - Ex) If the student ID is **20132013**, then the IS is c0835**20132013**.



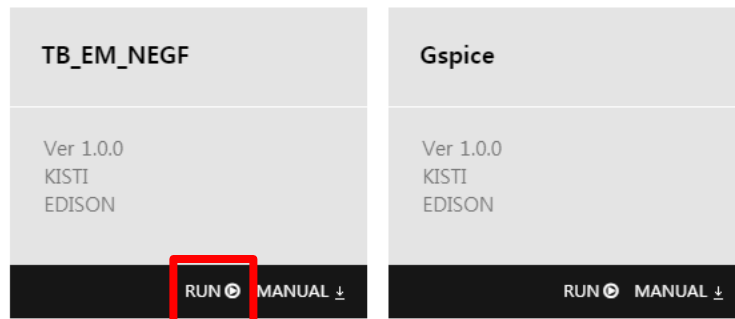
The screenshot shows a login interface for EDISON_Nanophysics. At the top is the logo, which consists of a green atom-like icon followed by the text "EDISON_Nanophysics" in blue and green. Below the logo are two input fields: "Enter Your ID" and "Enter Your Password". Under these fields are two buttons: a blue button labeled "로그인" (Login) and a green button labeled "KAFE". At the bottom of the form, there are two links: "아이디 찾기 비밀번호 찾기" (Find ID / Find Password) and "회원가입" (Sign Up).

After login...

- You will set the following page.
 - Click “RUN”



강의 사이언스앱



Name of your simulation

- Type any name.
 - Then, click “Create”



The image shows a software interface window titled "Simulation List" with a close button (X) in the top right corner. Below the title bar, there is a section labeled "New Simulation". To the right of this label is a text input field containing the text "CM_TEST". To the right of the input field is a button labeled "Create". Both the input field and the "Create" button are highlighted with red rectangular boxes.

You have a long list...

- But, first try the sample structure.
 - Click “Sample”

The screenshot shows a software interface for setting up a simulation. At the top, there is a breadcrumb navigation bar with the following items: TB_EM_NEGF, CM_TEST, #0001, 입력, and 분석. Below this is a table of parameters with dropdown menus and input fields. To the right of the table is a 'Port Selector' panel with a list of ports and buttons for saving and submitting.

Parameter	Value
MATERIAL	Si
_TB_MODEL_	Boykin_sp3s*
_SPIN_ORBIT_	OFF
ORIENT	100
_L_CH_	5.0 ≤ 10.0 ≤ 20.0
_L_G_	5.0 ≤ 10.0 ≤ 20.0
_L_S_	5.0 ≤ 10.0 ≤ 30.0
_L_D_	5.0 ≤ 10.0 ≤ 30.0
_T_CH_	0.6 ≤ 1.0 ≤ 10.0

Port Selector

입력 포트 2

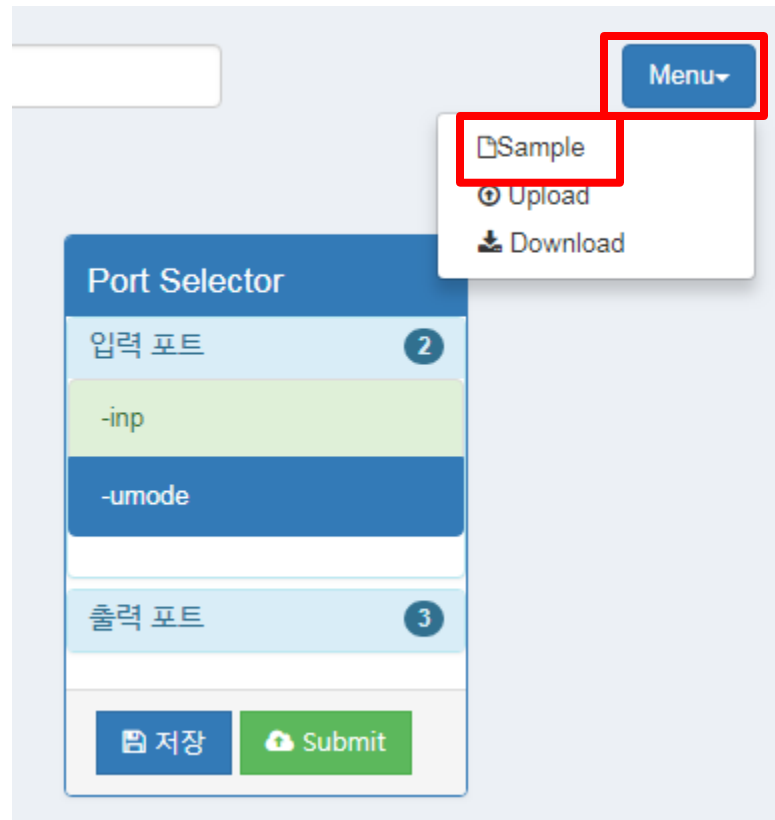
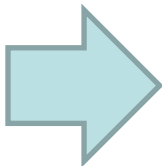
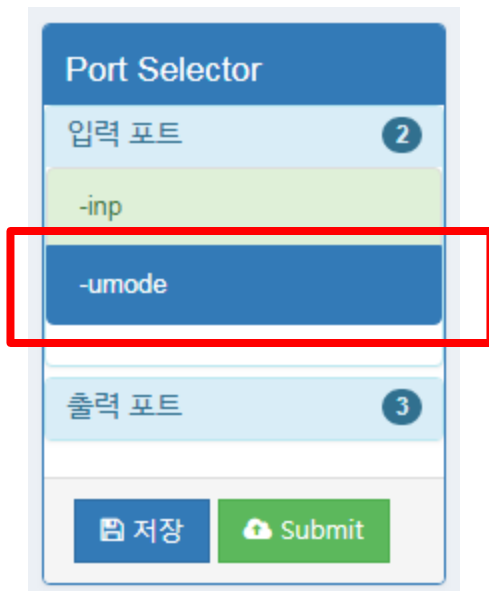
- inp
- umode

출력 포트 3

저장 Submit

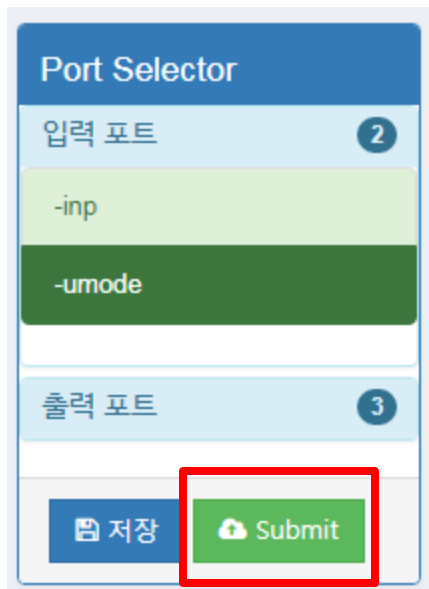
One more step

- Click “-umode”
 - Select “Sample” in the “Menu”



Now, submit

- Click “Submit”
 - Select the number of cores and submit.



Port Selector

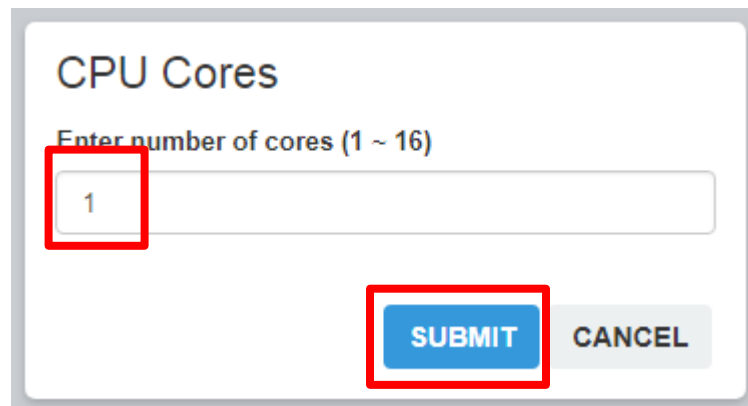
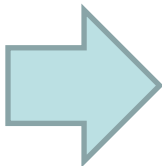
입력 포트 2

-inp

-umode

출력 포트 3

저장 Submit



CPU Cores

Enter number of cores (1 ~ 16)

1

SUBMIT CANCEL

After simulation is over,

- Click “Simulation” and select “Monitoring”
 - Then, you can see the simulation results.

