Supplementary Materials for

Facile p-n Control, Magnetic and Thermoelectric Properties of Chromium Selenides Cr$_{2+x}$Se$_3$

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Figure S1. Temperature dependence of (a) Electrical conductivity, (b) Seebeck coefficient, (c) Power factor and (d) Thermal conductivity of \( \text{Cr}_{2+x}\text{Se}_3 \) \((x = -0.04, -0.02, 0, 0.04, 0.06, 0.08 \text{ and } 0.12) \). No significant hysteresis was observed.
Figure S2. Tauc plot for Cr$_2$Se$_3$. 

$E_g = 0.40$ eV
**Table S1.** Lattice parameters of Cr$_{2+y}$Se$_3$ ($x = -0.04, 0, 0.08$) at room temperature.

<table>
<thead>
<tr>
<th>Sample</th>
<th>$x = -0.04$</th>
<th>$x = 0$</th>
<th>$x = 0.08$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a$ [Å] = $b$</td>
<td>6.2478(3)</td>
<td>6.2510(2)</td>
<td>6.2490(1)</td>
</tr>
<tr>
<td>$c$ [Å]</td>
<td>17.3354(9)</td>
<td>17.3280(5)</td>
<td>17.3853(4)</td>
</tr>
<tr>
<td>$V$ [Å$^3$]</td>
<td>586.02(8)</td>
<td>586.38(5)</td>
<td>587.94(2)</td>
</tr>
<tr>
<td>$R_P^a \backslash R_B^b$</td>
<td>0.107 \ 0.066</td>
<td>0.109 \ 0.106</td>
<td>0.122 \ 0.096</td>
</tr>
</tbody>
</table>

$^a R_P = \Sigma |y_o - y_c| / \Sigma |y_o|$

$^b R_B = \Sigma |I_o - I_c| / \Sigma |I_o|$