



Waarden en constanten				
Naam	symbool	waarde	eenheid (SI)	alternatieve eenheid
elementaire lading	<i>e</i>	<span><span></span>1.60217<span> </span>·<span> </span>10<sup>−19</sup></span>	C <small>(Coulomb)</small>	<span><span></span>4.803205<span> </span>Fr</span> <small>(franklins)</small>
Gravitatieconstante	<i>G</i>	<span><span></span>6.67259<span> </span>·<span> </span>10<sup>−11</sup></span>	<span><span><span><span><span><span></span></span><span> </span></span><span><span><span></span><span> </span><span>m</span><sup>3</sup></span><span> </span><span>s</span><sup>−2</sup></span></span></span></span> <span><span></span><span> </span></span> <span><span><span></span><span> </span><span>N</span></span><span> </span><span><span><span></span><span> </span><span>m</span><sup>2</sup></span><span> </span><span>kg</span><sup>−2</sup></span></span>	
constante van Planck	<i>h</i>	<span><span></span>6.62607<span> </span>·<span> </span>10<sup>−34</sup></span>	<span><span><span><span><span></span></span><span> </span><span>J</span></span><span> </span><span>s</span></span></span> <span><span></span><span> </span></span> <span><span><span><span><span></span></span><span> </span><span>kg</span></span><span> </span><span><span><span></span><span> </span><span>m</span><sup>2</sup></span><span> </span><span>s</span><sup>−2</sup></span></span></span>	<span><span></span>4.13566<span> </span>·<span> </span>10<sup>−15</sup><i>eV/s</i></span>
constante van Dirac	<span><span><span><span><span></span></span><span> </span><span>ħ</span></span></span><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>h</span></span><span> </span><span><span><span></span><span> </span><span>2</span><span>π</span></span></span></span></span></span>	<span><span></span>1,0545727<span> </span>·<span> </span>10<sup>−34</sup></span>	<span><span><span><span><span></span></span><span> </span><span>J</span></span><span> </span><span>s</span></span></span>	
lichtsnelheid in vacuüm	<i>c</i>	<span><span></span>2.99792<span> </span>·<span> </span>10<sup>8</sup></span>	m/s	<span><span></span>6.706<span> </span>·<span> </span>10<sup>8</sup><span> </span>mph</span>
permittiviteit van het vacuüm	<span><span><span><span><span></span></span><span> </span><span>ε</span></span><sub>0</sub></span></span>	<span><span></span>8.85418<span> </span>·<span> </span>10<sup>−12</sup></span>	<span><span><span><span><span></span></span><span> </span><span>F</span></span><span> </span><span><span><span></span><span> </span><span>m</span></span></span></span></span> <small>(Farad per meter)</small>	
permeabiliteit van het vacuüm	<span><span><span><span><span></span></span><span> </span><span>μ</span></span><sub>0</sub></span></span>	<span><span><span><span><span></span></span><span> </span><span>4</span><span>π</span></span></span><span> </span>·<span> </span>10<sup>−7</sup></span>	<span><span><span><span><span></span></span><span> </span><span>H</span></span><span> </span><span><span><span></span><span> </span><span>m</span></span></span></span></span> <small>(Hanry per meter)</small>	
fijnstructuurconstante	<span><span><span><span><span><span></span></span><span> </span><span>α</span></span></span></span><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>e</span><sup>2</sup></span><span> </span><span><span><span></span><span> </span><span>2</span><span>ħ</span><span>c</span><span>ε</span><sub>0</sub></span></span></span></span></span>	<span><span></span>≈<span> </span>1/137</span>		
bohrmagneton	<span><span><span><span><span></span></span><span> </span><span>μ</span></span><sub><i>B</i></sub><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>e</span></span><span> </span><span><span><span></span><span> </span><span>ħ</span></span></span><span> </span><span><span><span></span><span> </span><span>2</span><span>m</span><sub><i>e</i></sub></span></span></span></span></span></span>	<span><span></span>9,2741<span> </span>·<span> </span>10<sup>−24</sup></span>	<span><span><span><span><span></span></span><span> </span><span>A</span><span>m</span><sup>2</sup></span></span></span>	<span><span></span>0.46686<span> </span>cm<sup>−1</sup>/T</span>
bohrstraal	<i>a</i> <sub>0</sub>	<span><span></span>0,52918</span>		
rydbergconstante	<i>Ry</i>	<span><span></span>13,595</span>	<span><span><span><span><span></span></span><span> </span><span>e</span><span>V</span></span></span></span>	
comptongolflengte elektron	<span><span><span><span><span></span></span><span> </span><span>λ</span></span><sub><i>Ce</i></sub><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>h</span></span><span> </span><span><span><span></span><span> </span><span>m</span><sub><i>e</i></sub></span></span><span> </span><span><span><span></span></span><span> </span><span>c</span></span></span></span></span></span>	<span><span></span>2,2463<span> </span>·<span> </span>10<sup>−12</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
comptongolflengte proton	<span><span><span><span><span></span></span><span> </span><span>λ</span></span><sub><i>Cp</i></sub><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>h</span></span><span> </span><span><span><span></span><span> </span><span>m</span><sub><i>p</i></sub></span></span><span> </span><span><span><span></span></span><span> </span><span>c</span></span></span></span></span></span>	<span><span></span>1,3214<span> </span>·<span> </span>10<sup>−15</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
gereduceerde massa H-atoom	<span><span><span><span><span></span></span><span> </span><span>μ</span></span><sub><i>H</i></sub></span></span>	<span><span></span>9,10457<span> </span>·<span> </span>10<sup>−31</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
constante van Stefan-Boltzmann	<span><span><span><span><span></span></span><span> </span><span>σ</span></span></span></span>	<span><span></span>5,67032<span> </span>·<span> </span>10<sup>−8</sup></span>	<span><span><span><span><span></span></span><span> </span><span>W</span><span>m</span><sup>−2</sup><span>K</span><sup>−4</sup></span></span></span>	
constante van Wien	<span><span><span><span><span></span></span><span> </span><span>k</span></span><sub>W</sub></span></span>	<span><span></span>2,8978<span> </span>·<span> </span>10<sup>−3</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span><span>K</span></span></span></span>	
gasconstante	<i>R</i>	<span><span></span>8.31441</span>	<span><span><span><span><span></span></span><span> </span><span>J</span><span>·</span><span>mol</span><sup>−1</sup><span>·</span><span>K</span><sup>−1</sup></span></span></span>	
getal van Avogadro	<i>N</i> <sub>A</sub>	<span><span></span>6.02213<span> </span>·<span> </span>10<sup>23</sup></span>	<span><span><span><span><span></span></span><span> </span><span>mol</span><sup>−1</sup></span></span></span>	
constante van Boltzmann	<span><span><span><span><span></span></span><span> </span><span>k</span></span></span><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span>R</span></span><span> </span><span><span><span></span><span> </span><span>N</span><sub>A</sub></span></span></span></span></span>	<span><span></span>1.38065<span> </span>·<span> </span>10<sup>−23</sup></span>	<span><span><span><span><span></span></span><span> </span><span>J</span><span>/K</span></span></span></span>	
constante van Faraday	<i>F</i>	<span><span></span>96485</span>	<span><span><span><span><span></span></span><span> </span><span>C</span><span> </span><span>·</span><span> </span><span>mol</span><sup>−1</sup></span></span></span>	
massa van het elektron	<i>m</i> <sub><i>e</i></sub>	<span><span></span>9.10938<span> </span>·<span> </span>10<sup>−31</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
massa van het proton	<i>m</i> <sub><i>p</i></sub>	<span><span></span>1.67262<span> </span>·<span> </span>10<sup>−27</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
massa van het neutron	<i>m</i> <sub><i>n</i></sub>	<span><span></span>1.67495<span> </span>·<span> </span>10<sup>−27</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
elementaire massa <span></span> eenheid	<span><span><span><span><span></span></span><span> </span><span>m</span><sub><i>u</i></sub></span></span><span><span></span><span> </span></span><span><span><span><span><span></span></span><span> </span><span><span><span><span><span></span></span><span> </span><span>1</span><span>2</span></span></span></span><span> </span><span><span><span></span><span> </span><span>C</span></span></span></span></span></span></span>	<span><span></span>1.66056<span> </span>·<span> </span>10<sup>−27</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
kernmagneton	<span><span><span><span><span></span></span><span> </span><span>μ</span></span><sub><i>N</i></sub></span></span>	<span><span></span>5.0508<span> </span>·<span> </span>10<sup>−27</sup></span>	<span><span><span><span><span></span></span><span> </span><span>J</span><span>/T</span></span></span></span>	
diameter van de Zon	<span><span><span><span><span></span></span><span> </span><span>D</span></span><sub>☉</sub></span></span>	<span><span></span>1392<span> </span>·<span> </span>10<sup>6</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
massa van de Zon	<span><span><span><span><span></span></span><span> </span><span>M</span></span><sub>☉</sub></span></span>	<span><span></span>1.989<span> </span>·<span> </span>10<sup>30</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
straal van de Aarde	<span><span><span><span><span></span></span><span> </span><span>R</span></span><sub><i>A</i></sub></span></span>	<span><span></span>6.378<span> </span>·<span> </span>10<sup>6</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
massa van de Aarde	<span><span><span><span><span></span></span><span> </span><span>M</span></span><sub><i>A</i></sub></span></span>	<span><span></span>5.976<span> </span>·<span> </span>10<sup>24</sup></span>	<span><span><span><span><span></span></span><span> </span><span>kg</span></span></span></span>	
astronomische eenheid	<span><span><span><span><span></span></span><span> </span><span>A</span><span>E</span></span></span></span>	<span><span></span>1.49597<span> </span>·<span> </span>10<sup>11</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
lichtjaar	<span><span><span><span><span></span></span><span> </span><span>lj</span></span></span></span>	<span><span></span>9.4605<span> </span>·<span> </span>10<sup>15</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
parsec	<span><span><span><span><span></span></span><span> </span><span>pc</span></span></span></span>	<span><span></span>3.0857<span> </span>·<span> </span>10<sup>16</sup></span>	<span><span><span><span><span></span></span><span> </span><span>m</span></span></span></span>	
constante van Hubble	<i>H</i>	<span><span></span>≈<span> </span>(75<span> </span>±<span> </span>25)</span>	<span><span><span><span><span></span></span><span> </span><span>km</span><span>·</span><span>s</span><sup>−1</sup><span>·</span><span>Mpc</span><sup>−1</sup></span></span></span>	

