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|---------------|----------------------------------|
| S_{ni}^{dg} | Gravitational Constant |
| GF | Mass of object i |
| GC | Mass of object j |
| Mi | Distance between objects |
| Mj | fitness |
| D | high power loss |
| fit | low power loss |
| Bad | dimension |
| Good | Intensity of light at d distance |
| d | Source Intensity |
| IL (d) | Original IL |
| Is | |
| ILO | |

Greek symbols

| | |
|---------------|--|
| δ_{mi} | mi bus voltage phase angle |
| δ_{ni} | ni bus voltage phase angle |
| θ_{ni} | angle of admittance of $Y_i = Y_{ni} \angle \theta_{ni}$ |
| η | density factor |
| β | Absorption coefficient |
| α_0 | attractiveness at d = 0 |
| δ_{mi} | mi bus voltage phase angle |

Subscripts

| | |
|-------|--------------------------------|
| FA | Firefly Algorithm |
| GSA | Gravitational Search Algorithm |
| DG | Distributed Generation |
| FW/BW | Forward and Backward |
| PV | Photo Voltaic |