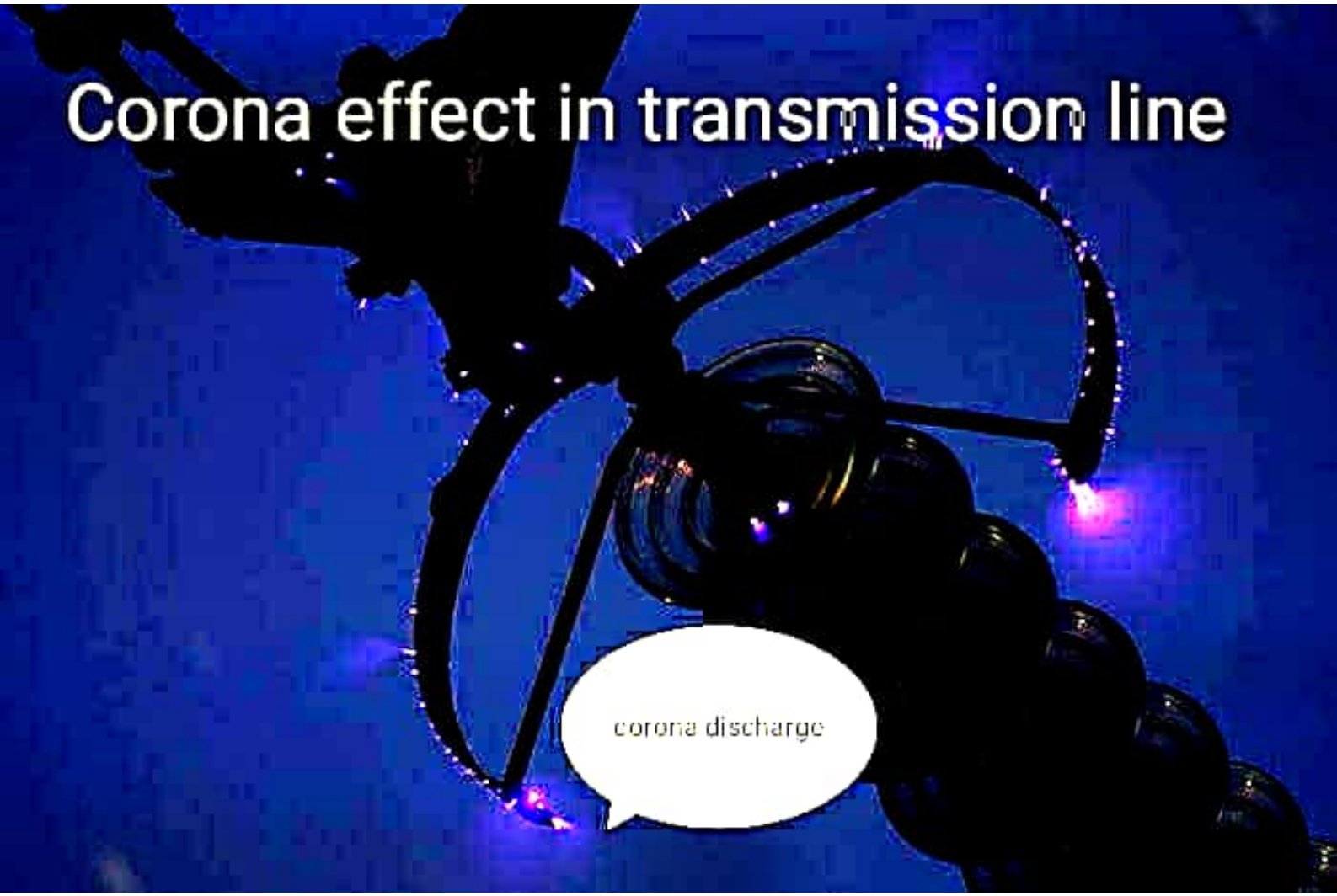

Notes :

CORONA

In high voltage transmission line in Rainy day a faint luminous glow of bluish colour appears along the length of conductor & hissing sound is heard.

The bluish discharge is known as CORONA. and ozone (O_3) gas released.

Critical Disruptive Voltage (V_d) :-

Lowest Voltage at which ionization starts.

Critical Visual Voltage (V_c) :-

Lowest voltage at which corona appears.

Corona occurs when electrostatic stress in the air around conductor exceeds :-

- 21.1 kV/cm — rms
- 30 kV/cm — maximum

Factor Affecting Corona :-

- Corona $\propto$ Voltage
- Corona $\propto \frac{1}{\text{distance between conductor } (d)}$

Reduction of Corona:
- Distance b/w conductor increased ↑
- Large diameter conductor using.
- By using ACSR conductor

- Corona $\propto \frac{1}{\text{Radius of Conductor } (r)}$
- Corona in stranded Conductor > Corona in Plain Conductor
- Corona in Rough surface > Smooth surface
- Corona in rainy day > Summer day.

Advantage:
- Reduction in transient effect.
- High voltage wave energy loss in form of corona.
- Effective size of conductor increased.
- Current carrying capacity of conductor increased.

Disadvantage:
- Power loss increased ↑
- Transmission efficiency decreases.
- Third harmonic wave generates & interrupts nearest communication line.
- O$_3$ makes conductor surface Rough so conductor becomes weak by corona.

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