

Fine structures of aurora: A review

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Most of the fine structures (<10 km spatial scale at 100 km altitude, <10 sec life time) of aurora are likely formed through the growth of instabilities and wave-particle resonant interactions in M-I coupled regions. We can learn such a complexity from the fine structures of aurora. We cannot yet “predict” the occurrences and appearances of the fine internal structures of auroral arcs, although we have “consistent” theories to possibly explain some of them. More efforts are still needed to critically test the possible theories. I would like to review recently advanced ground-based experiments to capture fine auroral structures in association with newly emerged imaging technologies, including our recent challenge of the “fastest” auroral imaging.

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