**Title:** On the plurisubharmonicity of the solution of the Fefferman type Monge-Ampère equations and applications

Abstract: In the talk, I will present my recent works on the plurisubharmonicity of the potential function of Kähler-Einstein metric or the solution of the Fefferman equations on a smoothly bounded strictly pseudo convex domain in  $\mathbb{C}^n$ . I will also present some results on the rigidity theorem associated to the potential function and the connections to pseudo-hermitian geometry. Finally, I will present some application for estimate of the bottom of the spectrum of Laplce-Beltami operator