An iridium(III) complex, [(dpci–H)\textsubscript{2}Ir(dafo)](PF\textsubscript{6}) (dpci–H = deprotonated 3,4-diphenylcinnoline, dpci; dafo = 4,5-diazafluoren-9-one), was synthesized from the reaction of the iridium complex [Ir(dpci–H)\textsubscript{2}(Cl)]\textsubscript{2} and dafo in methanol, and characterized by single-crystal X-ray diffraction along with FT-IR, UV/Vis, \textsuperscript{1}H NMR and mass spectroscopy. The luminescence properties and the decay of the cyclometalated iridium(III) complex were also investigated. Excitation at the absorption wavelength (469 nm) resulted in a strong emission band centered at 591 nm with a lifetime of 0.9 µs.

Key words: Iridium(III) Complex, 3-Phenylcinnoline, Crystal Structure, Photoluminescence