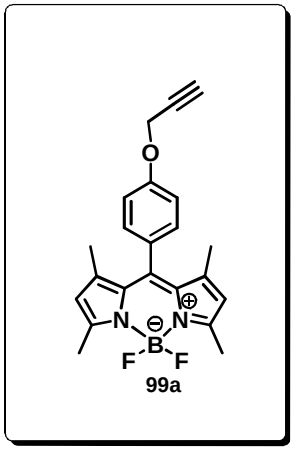
EXPERIMENTAL SECTION-CHAPTER-7

5,5-Difluoro-1,3,7,9-tetramethyl-10-(4-(prop-2-ynyloxy)phenyl)-5H-dipyrrolo[1,2-c:1',2'-f][1,3,2]diazaborinin-4-ium-5-uide 99a:

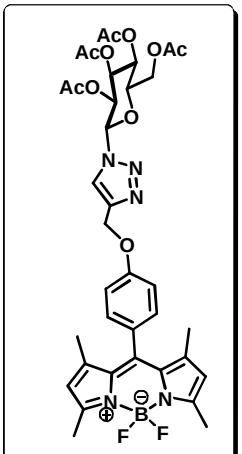
The5,5-difluoro-1,3,7,9-tetramethyl-10-(4-(prop-2-ynyloxy)phenyl)-5Hdipyrrolo[1,2-c:1',2'-f][1,3,2]diazaborinin-4-ium-5-uide **99a** was obtained as dark brown solid from 5,5'-((4-(prop-2-ynyloxy)phenyl)methylene)bis(2,4-dimethyl-1H-pyrrole) **97** (0.5 g, 1.8 mmol) and $BF_3.OEt_2$ (10 mL). Yield: 87% M. P. 80-82 ^oC ^1H NMR :(300 MHz, $CDCl_3$): δ_H 1.25 (s, 6H)2.54 (s, 6H), 4.75 (s, 2H), 5.97 (s, 2H), 6 7.08 (d, *J* = 8.7 Hz, 2H), 7.19 (d, *J* = 8.9 Hz 2H). ^{13}C NMR: (75 MHz, $CDCl_3$): δ_C 56.0, 76.3, 77.9, 114.9, 118.4, 127.1, 131.4, 132.3, 134.9, 143.6, 147.1, 159.9. Mass spectrum: MS (FAB): *m/z* = 378.17 [M^+] Analysis: $C_{22}H_{21}BF_2N_2O$: Calculated: C 69.86, H 5.60 N, 2.86 Found: C 69.86, H 5.61, N, 2.84



99a

BODIPY dendrimer 100.

Following the general procedure A**,** BODIPY dendrimer **100** was obtained as orange color solid from 5,5-difluoro-1,3,7,9-tetramethyl-10-(4-(prop-2-ynyloxy)phenyl)-5H-dipyrrolo[1,2-c:1',2'-f][1,3,2]diazaborinin-4-ium-5-uide **99a (**0.4 g, 0.12 mmol) and 2,3,4,6-tetra-O-acetyl-α-D-glucopyranoazide **74** (0.06 g, 0.14 mmol) after column chromatography using a mixture of $CHCl_3$:MeOH (4.8:0.2). Yield: 85%, ^1H NMR : (300 MHz, $CDCl_3$): δ_H 1.25(s, 6H), 1.42, 1.85, 2.07, 2.08 (s, 12H), 2.55 (s, 4H), 3.81 (s, 1H), 4.03-

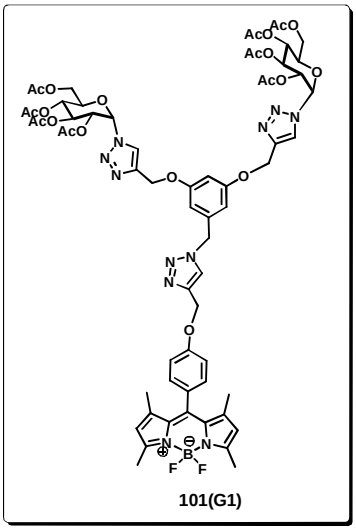


100 (G_0)

4.19 (m, 1H), 4.27-4.29 (m, 2H), 5.04 (s, 2H),4.96 - 4.99 (m, 1H), 5.11-5.14 (m, 2H), 5.24 (s, 1H), 5.98 (m, 1H), 6.98 (s, 1H), 7.11-7.19 (m, 4H), 7.93 (s, 2H). ^{13}C NMR: (75 MHz, $CDCl_3$): δ_C 14.6, 20.2, 20.5, 20.7, 29.7, 61.6, 61.7, 62.0, 67.7, 67.9, 70.7, 72.6, 74.0, 75.3, 85.9, 87.9, 114.9, 115.4, 121.2, 129.4, 130.1, 141.6, 143.1, 144.5, 155.4, 158,8, 169.2, 169.3, 170.1,170.5. MS (MALDI): *m/z*=751.36 $[M]^+$. Elemental Anal.Calcd for Chemical Formula: $C_{36}H_{40}BF_2N_5O_{10}$: C, 57.53; H, 5.36; N, 9.32; Found: C, 57.58; H, 5.39; N, 9.31

BODIPY dendrimer 101

Following the general procedure **A,** the BODIPY dendrimer **101** was obtained as orange color solid from 5,5-difluoro-1,3,7,9-tetramethyl-10-(4-(prop-2-ynyloxy)phenyl)-5H-dipyrrolo[1,2-c:1',2'-f][1,3,2]diazaborinin-4-ium-5-uide **99a (**0.3 g, 0.09 mmol) and dendritic azide **76** (0.78 g, 0.57 mmol) (0.1 g, 0.1 mmol) and after purification from column using a mixture of $CHCl_3$:MeOH (23:2). Yield: 88%, ^{1}H NMR : (300 MHz, $CDCl_3$): δ_H 1.25(s, 6H), 1.40, 1.65, 1.86, 2.07 (4x s, 24H), 2.55 (s, 6H), 4.05 (s, 4H), 4.04-4. 33 (m, 4H), 5.16 (s, 4H), 5.21-5.54 (m, 8H), 5.86-6.65 (m, 2H), 6.57 (s, 2H), 6.58 (s, 2H), 6.65 (s, 2H), 7.16 (d, *J* = 8.4 Hz, 2H) 7.63 (d, *J* = 8.7 Hz, 2H) 7.92 (s, 2H), ^{13}C NMR: (75 MHz, $CDCl_3$): δ_C 14.5, 20.1, 20.7, 29.8,54.6, 61.5, 61.8, 61.9, 67.7, 70.3, 72.6, 75.1, 85.8, 101.5,107.8, 115.5, 121.4, 123.1, 127.9, 129.3, 136.8, 138.0, 144.3, 144.6, 155.4, 159.6, 159.8, 168.9, 169.4, 169.4, 169.5, 170.5. MS (MALDI): *m/z*=1388.66 $[M+Na]^+$. Elemental Anal.Calcd for $C_{63}H_{70}BF_2N_{11}O_{21}$: C, 55.39%; H, 5.16%; N, 11.28%; Found: C, 55.45%; H, 5.26%; N, 11.19%;



BODIPY dendrimer 102

Following the general procedure **A,** the BODIPY dendrimer **102** was obtained as orange color solid from 5,5-difluoro-1,3,7,9-tetramethyl-10-(4-(prop-2-ynyloxy)phenyl)-5H-dipyrrolo[1,2-c:1',2'-f][1,3,2]diazaborinin-4-ium-5-uide **99a (**0.2 g, 0.06 mmol) and dendritic azide **78** (0.15 g, 0.07 mmol) after purification from column using a mixture of $CHCl_3$:MeOH (23:2). Yield: 85%, ^{1}H NMR : (300 MHz, $CDCl_3$): (300 MHz, $CDCl_3$): δ_H 1.26(s, 6H), 1.39, 1.82, 2.04, 2.07 (s, 48H), 4.07-4.13 (m, 4H), 4.24-4.29 (m, 4H), 4.31-4.33 (s, 4H), 5.1 (s, 12H), 5.31 (s, 6H), 5.40-5.52 (m, 14H), 5.93 (d, *J* = 8.4 Hz, 8H), 6.48 (s, 8H) 6.52 (s, 6H), 7.15 (s, 2H), 7.63(s, 2H), 7.99(s, 6H). ^{13}C NMR: (75 MHz, $CDCl_3$): δ_C 14.5, 20.1, 20.5, 20.6, 20.7, 29.8, 54.6, 61.5, 61.8, 61.9, 67.7, 70.3, 72.6, 75.2, 85.8, 101.5, 107.7,107.9, 115.5, 121.4, 121.5, 123.1, 127.9, 129.3, 136.8, 138.0, 144.3, 144.4, 144.6, 155.4, 159.8, 168.9, 169.4, 170.5. MS (MALDI): *m/z*=2617.14 $[M+Na]^+$. Elemental Anal.Calcd for $C_{117}H_{130}BF_2N_{23}O_{43}$: C, 54.15; H, 5.05; N, 12.41%. Found: C, 54.19; H, 5.07; N, 12.48.