Data	p_{beam} (MeV/c)	$\sigma_{p_{\mathrm{beam}}}/p_{\mathrm{beam}}$ (%)	Depth d (mm)	Spacing s (μm)	Diameter ϕ (μm)	Max emission efficiency R_{vac} (%)
Simulation [a]	28	2.5	1	45 ± 5	152 ± 16	4.124 ± 0.007
			2	50 ± 5	232 ± 16	4.980 ± 0.009
			5	35 ± 5	360 ± 16	7.92 ± 0.02
		5	1	50 ± 5	168 ± 16	2.762 ± 0.007
			2	50 ± 5	248 ± 16	3.172 ± 0.008
			5	40 ± 5	312 ± 16	4.36 ± 0.01
		10	1	50 ± 5	152 ± 16	2.166 ± 0.007
			2	50 ± 5	232 ± 16	2.451 ± 0.008
			5	45 ± 5	312 ± 16	3.22 ± 0.01
Ref. [23] (S18) [a]	23	2	1	85	165	2.76 ± 0.02 [b]
Ref. [24] [a]	28	5	4.75 ± 0.25	30	270	3.05 ± 0.03 [b]
Ref. [25] (Aerogel-1)	12.5	3.4	4.5 ± 0.5	45 ± 5	105 ± 5	$6.72 \pm 0.05^{+1.06}_{-0.76}$ [c]

[a] Only statistical errors are shown.

[b] Includes muonium decays within 10 mm $< z <$ 40 mm only.

[c] Model-dependent assumptions of the temperature at 400 K and the diffusion time at 200 ns.

TABLE II: Simulation of maximum vacuum muonium yield and corresponding optimal spacing and diameter with different beam condition.

Data	p_{beam} (MeV/c)	$\sigma_{p_{\mathrm{beam}}}/p_{\mathrm{beam}}$ (%)	Depth d (mm)	Spacing s (μm)	Diameter ϕ (μm)	Max vacuum yield Y_{vac} (%)
Simulation [a]	28	2.5	1	50 ± 5	152 ± 16	1.092 ± 0.002
			2	55 ± 5	184 ± 16	1.134 ± 0.002
			5	55 ± 5	184 ± 16	1.122 ± 0.002
		5	1	50 ± 5	152 ± 16	0.583 ± 0.001
			2	60 ± 5	216 ± 16	0.607 ± 0.001
			5	50 ± 5	184 ± 16	0.604 ± 0.001
		10	1	50 ± 5	152 ± 16	0.305 ± 0.001
			2	55 ± 5	200 ± 16	0.320 ± 0.001
			5	60 ± 5	232 ± 16	0.321 ± 0.001
Ref. [23] (S18) [a]	23	2	1	85	165	0.547 ± 0.004 [bc]
Ref. [24] [a]	28	5	4.75 ± 0.25	30	270	0.265 ± 0.003 [bc]
Ref. [25] (Aerogel-1) [a]	12.5	3.4	4.5 ± 0.5	45 ± 5	105 ± 5	1.22 ± 0.01 [bd]