less than 0.01% for $c \le 0.3$. However, $H_{42}^{(1)}$ overestimates H while $H_{52}^{(1)}$ underestimates H. The average of $H_{42}^{(1)}$ and $H_{52}^{(1)}$ is a remarkably accurate approximation to the H-function. It is compared in Table I with values of H-function given by Chandrasekhar[5] (for $c = 0.1$) and Carlstedt and Mullikin[7] ($c \ge 0.3$), and the agreement is better than 0.005% for $c \approx 1$ and better than 0.001% for $c \le 0.5$. The H-functions given by Carlstedt and Mullikin[7] are presumably accurate to within about 0.001%.

P. Rafalski[2] has pointed out that the method of approximation used here and in I is closely allied to that of Yu. A. Romanov[4] and suggested comparing the results of Romanov with those in I. Romanov[4] uses the equation for the angular distribution function $\phi(\mu)$ on the boundary of a semi-infinite isotropic medium (Milne Problem)

$$\int_0^1 \frac{\phi(\mu')\mu' d\mu'}{\mu + \mu'} = \frac{c}{2\phi(\mu)(1-K^2\mu^2)}, \tag{13}$$

where K is the root of Eq. (6). He approximates $\phi(\mu)$ by its first iterate obtained using an initial approximation

$$\phi_0(\mu) = \frac{a + b\mu}{1 - K^2\mu^2} . \tag{14}$$

TABLE I

The H-function and its Analytic Approximation

c \ μ	0	0.1	0.3	0.5	0.7	0.9	0.99	1.0
	$H \approx \frac{1}{2}[H_{42}^{(1)} + H_{52}^{(1)}]$							
0	1	1	1	1	1	1	1	1
0.2	1	1.01864	1.06116	1.11348	1.18255	1.29148	1.39982	1.45041
0.4	1	1.02630	1.08811	1.16798	1.28062	1.47848	1.70748	1.82925
0.6	1	1.03106	1.10538	1.20434	1.35006	1.62584	1.98328	2.19406
0.8	1	1.03436	1.11762	1.23088	1.40287	1.74734	2.23690	2.55260
1.0	1	1.03682	1.12684	1.25125	1.44472	1.85003	2.47268	2.90768
	H-function							
0	1	1	1	1	1	1	1	1
0.2	1	1.01864	1.06115	1.11346	1.18252	1.29143	1.39977	1.45035
0.4	1	1.02630	1.08811	1.16797	1.28062	1.47850	1.70750	1.82928
0.6	1	1.03106	1.10537	1.20435	1.35008	1.62588	1.98336	2.19413
0.8	1	1.03436	1.11763	1.23089	1.40290	1.74740	2.23700	2.55270
1.0	1	1.03681	1.12684	1.25126	1.44475	1.85010	2.47279	2.90781

[7] J. L. CARLSTEDT and T. W. MULLIKIN, "Chandrasekhar's X and Y Functions," *Astrophys. J. Suppl.*, 12, 113 (1966).

We observe that the H-function and the angular distribution function ϕ are related by

$$H(\mu) = \frac{2}{c}(1 - K\mu)\phi(\mu) \tag{15}$$

as can easily be demonstrated from Eqs. (1) and (13). We further observe that with Eq. (15), the expressions[1,5,8] for the directional and net albedos in terms of H and in terms[4] of ϕ are equivalent. The first iterate ϕ_1 from Eqs. (13) and (14) is, in fact, equivalent to Eqs. (8) and (11).

The above approximations for the H-function when applied to the expressions for the directional and net reflection functions in terms of the H-function[1,5,8] yield the desired approximations. In particular, for particles incident in the direction μ_0, the net albedo is

$$R(\mu_0) = 1 - (1-c)^{1/2} H(\mu_0). \tag{16}$$

Table II compares $1-R(1)$ and its approximate value achieved by replacing H by $\frac{1}{2}[H_{42}^{(1)} + H_{52}^{(1)}]$.

TABLE II

$1 - R(\mu_0 = 1) = (1-c)^{1/2}H(1)$

c	0	0.1	0.3	0.5	0.7	0.9	0.99	1
$\frac{1}{2}[H_{42}^{(1)} + H_{52}^{(1)}]$	1	0.98361	0.94278	0.88477	0.79131	0.58503	0.24727	0
H-function	1	0.98360	0.94278	0.88477	0.79132	0.58505	0.24728	0

A more complete comparison[4] of the various approximations to the H-function and directional and net reflection functions will be presented as an ANL report. Further applications of the above approximations are being investigated.

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[8] D. S. SELENGUT, "Distribution of Neutrons Reflected from a Semi-infinite Slab," *Reactor Technology*, KAPL-2000-20, Report No. 23, p. III. 44, Knolls Atomic Power Laboratory (1963).

Corrigendum

BAL RAJ SEHGAL, "Monte Carlo Calculations of Resonance Integral of ^{232}Th," *Nucl. Sci. Eng.*, **27**, 95 (1967).

The first equation on p. 102 should read:

$$(S/M)_{Th} = 1.138\ (S/M)_{ThO_2} + 0.066.$$