where $1/B = T$ – a temperature; B – a real-valued inverse temperature; B_p – an inverse real temperature measurement; B_m – the inverse «agentive» temperature; B_n – an inverse agentive temperature measurement; λ – a wave length; λ_o – a «reckoning» wave length; $æ_æ$ – the spectral ratio; $æ_æ(B)/æ_æ(B_m)$ – the thermal ratio of spectral ratios; Σ_j – summation sign of series on natural numbers; g_j – weight coefficients; j – natural number; s, t – minimum and maximum of released natural numbers; $\{B_m(j), \lambda_o(j)\}$ – the set of inverse agentive temperatures with reckonings waves lengths; $a(s, t)$ – a relative module of methodical error; $A(s, t)$ – an error of inverse temperature; æ – conversion coefficient («radiomatical» factor) for the gauged radiation, defined by the object radiation blackness factor multiplying in observation medium with a transfer coefficient of a gauged electromagnetic radiation; $æ_b$ – more explicit modeling approximate value is at factor æ. Measurement of the approximate «radiometric» temperature admits using some modeling value $æ_b$ at «radiomatical» factor æ and some averaging on a logarithmic coordinates.

A multi-tier measurement (1) will be matching to a collection-set radiometric temperature.

Such a method is called multi-tier technique carried out in operations with preliminary or additional detection of a system's state. The averaging on a spectrum and on sample of values of agentive temperatures with some weight coefficients here is supposed. The real-valued inverse temperature is being defined by weight interpolation on inverse agentive temperature's samples.

Let's admit that the relative module of methodical error in (1) is negligible and next we gain.

$$B = \sum\nolimits_{j=s,t} \{(B_p - B_n) + B_m\}; \quad \sum\nolimits_{j=s,t} \{\ln[æ_{æb}(B)/æ_{æb}(B_m)]/[C(1/\lambda - 1/\lambda_o)]\} \cdot g_j << B;\ a << 1. \quad (2)$$

Necessary 'g_j' – weight coefficients can be received with use of averaging and interpolation.

For example, we will theoretically investigate estimation's methodical error of temperature measurement at heating with temperature 1100 K and measurement of a spectrum of thermal radiation in a perpendicular direction from out surface of iridium over the range lengths of waves 900–1700 nanometers. One reckoning wave length equal to 900 nanometers. Two agentive temperatures are equal to 1500 and 2000 K. The given sampling of temperatures is caused by the iridium radiation factor reference data, represented in the article [5]. Also we will assume that relative error of simplified reference radiation factor is negligible.

For problem simplification we will assume that absorption of electromagnetic radiation in an optical medium of measurement is negligible. Besides we will assume that the statistical error of measurements is negligible. Also we will assume that the measurement installation has exact demanded apparatus dependence of output signal from light intensity.

For example, after the simplified calculations we gain the relative methodical error of iridium temperature measurement on 1100 K ($j = 1$) in dependence from multitier values $\{s, t\}$, which is noted in formula (1). Methodical error of a collection-set radiometric temperature (2), with ($s = 2$, $T_2 = 1500$ K) at dependence from multitier counts $\{t = 2, 3\}$ is in next approximate quantities.

$$\{t = 2\}; \quad a = 0{,}0038; \quad g_2 = 1; \quad \{t = 3\}; \quad a \approx 0; \quad g_2 = -0{,}26; \quad g_3 = 1{,}26. \qquad (3)$$

The two-tiered approach with $\{t = 2\}$ gains a quite good methodical relative error (3) at the given simplified example. More difficult three-tiered approach with $\{t = 3\}$ gains an appropriate excellent methodical relative error at ideal conditions. The one-tier confluent approach gains an adequate moderate methodical relative error [2, 3], which depends on the sample real model.

The result of pyrometric temperature measurement depends on how much the temperature dependences of optical properties are studied for a given object and a given optical path and how the measuring scale can be calibrated directly in experiments. Also the emissivity and the absorptivity of microparticles and/or nanoparticles (MNPs) should be taken into account. Along with thermal radiation, characteristic radiation (atomic radiation lines) can also be excited. The latter should however be ignored to obtain reliable pyrometric data for the temperature.

References

1. Dubas L.G. Edition of RANH, European Journal of Natural History. – 2012. – № 1. – P. 41.

2. Dubas L.G. Edition of RANH, Advances in Current Natural Sciences. – 2012. – № 4. – P. 73–77.

3. Dubas L.G. Conference of RANH. – http://econf.rae.ru/article/6558, ref date 14/02/2012. – 6 p.

4. Radiometric temperature measurements. Z.M. Zhang, etc., Eds. // Experimental Methods in the Physical Sciences. – 2009 and 2010. – Vol. 42 and 43. Amsterdam: Elsevier.

5. Barnes B.T., Journal of the Optical Soc. of America. – 1966. – Vol. 56, № 11. – P. 1546–1550.

The work is submitted to the International Scientific Conference «Present-day problems of science and education», Russia, (Moscow), February 26-28 2013, came to the editorial office on 20.12.2012.

VISCERAL LYMPH NODES IN ABDOMINAL CAVITY OF THE GUINEA-PIG. TOPOGRAPHY AND CLASSIFICATION

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I studied 10 guinea-pigs of 2-3 months old and found such visceral lymph nodes (LN) in the abdominal cavity:

1) coeliac LN (1-2), small, about beginning of son a me artery;

2) hepatic LN (1-2) with shape as bean or coffee-bean, on the left side from hepatic portal vein;

3) gastric, sub pyloric LN (1);

4) pancreatic LN (2), the left (gastropancreatic), about gastric branches of splenic artery, and the right, near bases of cranial and right caudal branches of tail of pancreas;

5) splenic LN (1-2), the most small among all visceral LN in the abdominal cavity, lie near hilus of spleen and right dorsal branch of tail of pancreas;

6) paraaortic LN (1-2), near beginning of cranial mesenteric artery;

7) pancreatico duodenal LN (2-3), compact con jest ion between caudal part of duodenum and head of pancreas, near duodenojejunal flexure;

8) paracolic or distal central cranial mesenteric LN (3-4), in short common root of mesentery and mesocolon, the most large among these and all visceral LN of abdominal cavity – the proximal LN (labout duodenojejunal flexure, more ventrally, with shape as coffee-bean) or offer the distal LN (about apex of caecum with shape as horseshoe, which is segmented probably in result of fusion of few LN or incomplete division of their anlage);

9) ileocolic LN (2) with bean´s shape and different sizes, lie on both sides of ileocolic blood vessels, in the bend of terminal segment of ileum, between ileum and place of division of ileocolic artery on the end branches, one of them passes under the large LN to the bend of ileum;

10) ileocecalis LN (1) with bean´s shape, more wide than large ileocolic LN, lies on the base of caecum, more distal, than ending of ileum;

11) caudal mesenteric LN (1-2), in short descending mesocolon, on dorsal side from beginning of descending colon and from caudal mesenteric artery.

The cranial mesenteric LN (9-12) I divide on 2 groups:

1) the central (6-9), proximal and distal;

2) the peripheral (3).

The coeliac LN may be consider as the central among LN in basin of coeliac artery.

The work is submitted to the International Scientific Conference «Science and education integration», Maldive Islands, February, 15-22, 2013, came to the editorial office on 27.11.2012.