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# MATHEMATICAL DEFINING the PROBLEM to OPTIMIZATION MODE

With mathematical standpoint of the problem of the optimum load sharing is reduced to searching for of the minimum to functions many variable moreover these variable is not independent, but have variety of restrictions or relationships.

For optimization of the mode it is necessary to find the minimum of the expenseses, which hang from big amount variables, bound condition of the restriction.

Mathematically possible define a task optimization in such way. Have a function n variable *F(x1, х1, ,хn)*. These variable bound between itself *k* or equations jaggy relationship:

*W1 (x1, х2, ,хn) ≥ 0;*

*W2 (x1, х2, ,хn) ≥ 0; (1)*

*……………………......*

*Wk (x1, х2, ,хn) ≥ 0.*

where *W1, W2, Wk* - some functions variable *xi,(i = 1,2,...n)*.

It is Necessary to find the minimum to functions *F*. The Decision of the problem to optimization at restrictions in the form of the jaggies requires using very complex methods to optimization (the method Kuna-Takkera and others). We Shall consider the more simple methods to optimization at restrictions variable in the form of the equations. In this case number of the equations k must be less *n*.

At decision of the problems to optimization of the mode is broadly used method of the vague multipliers Lagranzha. Herewith instead of conditions of the extremum to functions *F(x1, h1, ... ,hn)* and variable, bound between itself *k* correlations (1), search for condition of the extremum to functions Lagranzha

 (2)

where  (*i=*1,2,... *k*) - a constant multipliers, conditioned when finding the functions *F*. These multipliers are identified the vague multiplier Lagranzha.

After comparison with zero quotient derived by *S* on the whole *n* variable function, shall get following n equation:



(3)



In considered method were defined arguments, which answer the extremum to minimum function *F*. To found extremum was a minimum, necessary to check the sign of the second differential function *F* or *S*. If *d*2*F* > 0 or *d*2*S* > 0, that given extremum is a minimum.